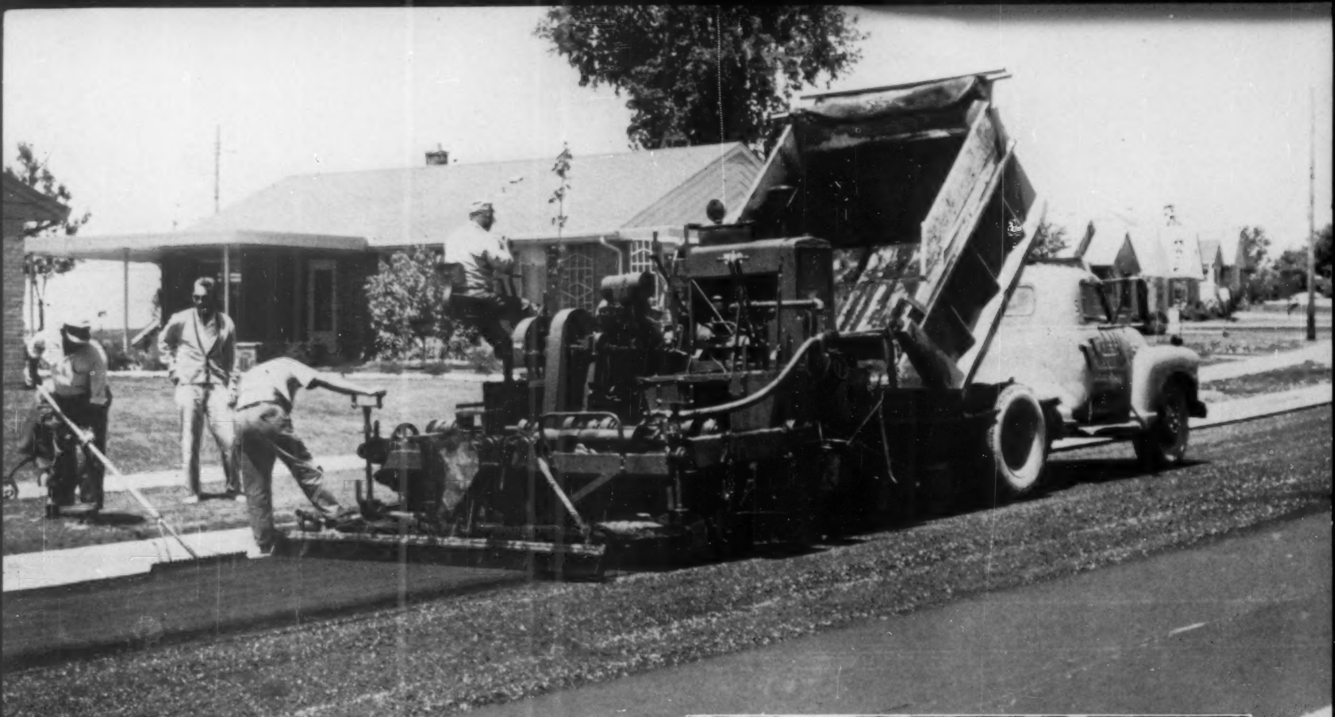
SEPTEMBER 1960

# The American City

A Buttenheim Publication

Training work at Rochester, N. Y., Fire Academy watched by (left to right) Kenneth C. Townson, Commissioner of Public Safety; F. How Hamblin, City Manager; Peter Barry, Mayor; George L. Holzschuh, Fire Chief. See page 3.



Constructing durable hot-mix Texaco Asphaltic Concrete surface over gravel base is final step in paving street of Milwaukee suburb.

Note broom attachment at rear of asphalt paving machine.

# How Milwaukee paves a new suburb

Milwaukee's method of handling street paving in a new suburb has worked out very satisfactorily for all concerned. While houses are being erected, the city covers the streets with gravel. This provides an adequate surface temporarily and the gravel is gradually compacted by traffic. After completion of the homes and the construction of sidewalks, curbs and gutters, work is resumed on the pavement. A contractor brings the gravel to grade, primes it with a medium-curing cutback asphalt, then lays a durable 2½-inch wearing surface of hot-mix Texaco Asphaltic Concrete.

This economical type of pavement will deliver many years of service with a minimum of maintenance. The Texaco Asphalt wearing surface is speedily laid and opened to traffic, requiring no time-consuming curing period. Because of its resilience and the fact that it needs no expansion joints, it has a velvet-smooth riding quality which is especially desirable in suburban areas. Other advantages of a Texaco Asphaltic Concrete pavement on a residential street are its highly skid-resistant texture and the absence of glare, thanks to its dark surface.

Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils offer the municipal official a number of heavy-duty, intermediate and low-cost types of paving for streets, airports and parking areas.

**Helpful Booklets**

Two Texaco brochures describe the methods and materials recommended for all types of Asphalt paving. We shall be glad to send you copies.

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TEXACO T

**TEXACO ASPHALT**

The
American City
A Buttenheim Publication

SEPTEMBER 1960

MAGAZINE OF MUNICIPAL MANAGEMENT AND ENGINEERING

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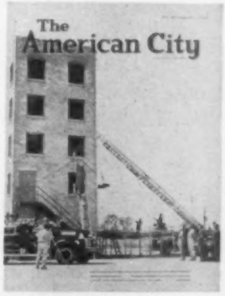

### Cover Picture

The four men in the lower right have done a bigger job for Rochester, New York, than their size in the picture suggests. General Kenneth A. Townson, Commissioner of Public Safety (left), says that the city is one of the few in its class so well equipped for fire department training. Not only volunteer companies but industry battalions as well train here. And Rochester's insurance rates are way down. In addition to the city officials, an officer may be seen shooting movies for training purposes. Rochester frequently shoots movies of major fires to study techniques. See story on page 159.

***DATA·phone***

# A NEW TELEPHONE SERVICE FOR THE NEW ELECTRONIC ERA

Bell System's Data-Phone service enables modern business machines to "talk" to each other over regular telephone lines

More and more businesses are using complex computers and other electronic machines to process current facts and figures.

Where plants, warehouses, branches or offices are located in different cities and states, there is increasing need for a quick, economical way to transmit payroll, inventory, billing and other data from place to place.

This is especially true where the policy is toward decentralization of various activities.

In serving this communication need, the Bell System has come up with a new and extremely flexible method called Data-Phone service.

The great advantage is that business data goes over the same telephone lines you use for telephone conversations.

The new service uses Data-Phone sets to link customers' business machines—handling paper tape, magnetic tape or punched cards—to regular telephone lines. This machine-furnished data can be handled over telephone lines at speeds up to 1200 *bits* per second.

The customer pays for each Data-Phone call just like a Long Distance call for any period he wants.

Thus, in addition to our teletypewriter service, designed for low-speed operations, and our leased-line offerings allowing literally any speeds, we can now offer the added flexibility of our vast Long Distance telephone network for data transmission.

In providing the communication lines and Data-Phones, the Bell System is working right along with manufacturers who are developing the business machines to complete the service.

It all adds up to an interesting and exciting opportunity to render a new data communications service for our business customers.

**A GREAT FUTURE**

**It is not improbable, within the next decade, that the amount of communication between electronic business machines in different cities will be as large as telephone communication between people.**

**BELL TELEPHONE SYSTEM**

Volume 75 Number 9

The
American City

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# LETTERS TO THE EDITOR

## Tax Inequity

You will probably agree that the most important problem facing local governing bodies is the necessity for financing services and improvements in an equitable manner.

In Florida, paying for them in residential areas by *ad valorem* taxes is nearly impossible, due to Florida's Homestead Exemption, which exempts from taxation the first $5,000 of valuation. However, residents of these communities want and have a right to expect a high standard of sanitation, garbage and trash disposal, sanitary and storm drainage, good streets and sidewalks, as well as schools, police and fire protection.

Consequently, Florida municipalities have had to adopt direct charges for each service and direct assessment for the construction of sewer lines, streets, and sidewalks.

The disadvantage of the use of service charges and assessments is the penalty imposed on the residents by the federal government, through the Internal Revenue service. While the cost of services and improvements if collected by *ad valorem*, sales, or local income taxes is deductible by the taxpayer when federal income-tax returns are filed, the same cost when collected by means of direct charges or assessments is not deductible. This means that the residents of those communities where the local government is trying to be equitable in the distribution of the cost of services are actually penalized by the federal government.

To correct this inequity Congressman Dante B. Fascell of our district in Florida has introduced a bill, H. R. 9233, which if enacted into law will define as a tax any charge collected by a local government by law, when the taxpayer is given no option as to whether he shall receive and pay for the service or improvement.

At present this bill is tied up in the Ways and Means Committee. We believe it should receive priority consideration and be enacted promptly at the next session of Congress. If municipal governments all over the nation are made aware of the existence of the bill public sentiment will insure such action.

**Lawrence W. Bowers**
*Commissioner*
*Opa-Locka, Fla.*

## "When to Build An Incinerator"

The article, "When to Build an Incinerator" appearing in the March, 1960 issue of The American City (p. 118) was without a doubt one of the finest I have ever read on the subject.

**William H. Edwards**
*Managing Editor*
*Ohio Cities and Villages*
*Columbus, Ohio*

## City Engineers' Handbook

Judging from the number of inquiries that I have received concerning the article, "No More 'Coffee Can' Meter-Pit Pumping," in your July issue, page 27, it appears that The American City is the handbook of city engineers and maintenance men.

**A. C. Swartz**
*Director of Public Works*
*Costa Mesa, Calif.*

## Top Ten Public Works Men of the Year

Public works engineers and administrators in particular are about to receive some well-earned recognition. The American Public Works Association, in cooperation with Kiwanis International, recently launched a public education program designed to create greater citizen awareness of the importance of public works to every American and particularly to those living in the urban areas. Another important goal is to encourage promising young men to pursue careers in this important field of activity.

A highlight of the program, announced by Jean L. Vincenz, Immediate Past-President of the APWA and Director of Public Works of San Diego County, Calif., will be the observance of National Public Works Week, October 2-8, 1960. Plans call for the issuance of proclamations by the President, as well as by governors and mayors throughout the nation.

Observation of this week at the local level includes open house at public facilities, parades, press,

*(Continued on page 18)*

# Quality *costs less* in the long run!

## BJ Submersible Pumps

Nowhere is quality more important than in a submersible pump installation where both pump and motor operate down-hole. And that's where BJ quality pays off!

Sealed for life, no adjustments or routine maintenance is required...no noise, no pump house needed, and there is no danger of vandalism or contamination of the well.

As a pioneer in submersible pumps since 1928, BJ manufactures all three basic components—pump, motor and seal—and offers complete unit responsibility with *the* quality submersible pump. Available in capacities from 20 to 20,000 GPM, heads to 1,800 feet and motors to 450 HP.

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Since 1934, Beverly Hills, California has installed a total of 21 silent BJ Submersibles in some of the most exclusive residential areas in the U.S.

# The Urban Planks in the Party Platforms

The platforms of both political parties, this year, make strong pledges to the nation's urban areas. This may escape some, but the pledges are there, made possible by the dedicated efforts of urban leaders who put the welfare of their cities foremost. Both the cities and the nation at large stand to benefit.

At both political conventions, a group of mayors representing the American Municipal Association and the U. S. Conference of Mayors met with the respective platform committees and argued that the platforms include the comprehensive urban affairs plank that both municipal associations recommend. Six Democratic mayors made the presentation in Los Angeles, and six Republican mayors did the same in Chicago. They both presented the same urban affairs plank.

The Democrats heard leaders such as Mayor Robert F. Wagner, New York; Mayor Richardson Dilworth, Philadelphia; Mayor Richard J. Daley, Chicago; Mayor Ivan Nestingen, Madison, Wis.; Mayor Ben West, Nashville, Tenn. The Republicans heard the same case argued by leaders such as Mayor Norris Poulson, Los Angeles; Mayor J. A. Henninger, Syracuse, N. Y.; Mayor William F. Duckworth, Norfolk, Va.; Mayor Thomas A. McCann, Fort Worth, Tex.; Mayor Gordon Clinton, Seattle; and Mayor John J. Duncan, Knoxville, Tenn.

In case anyone has not kept completely abreast of the fast-paced changing conditions across the nation, Mayors Duckworth of Norfolk and McCann of Forth Worth, by party affiliation, were indeed entitled to speak before the Republican platform committee in Chicago.

In both cases, the planks selected reflect Republican preference for encouraging action on a state and local level, and the Democratic preference for giving the federal government a stronger role. However, in actuality, the difference is not great.

For example, the Democratic platform pledges a place at the presidential cabinet table for urban interests. The Republicans, in contrast, state that "no vast new bureaucracy is needed" to improve liaison between federal, state and local governments. This does not necessarily mean that the Republicans have shut the door on such a proposal, however. Earlier this year, Representative John V. Lindsay, Rep., of New York presented an act in Congress to establish an urban cabinet post, arguing that it would not add, but would merely consolidate existing scattered federal-urban functions.

On the subject of urban renewal and slum clearance, the Democratic platform places a target of 2,000,000 new homes a year, and pledges special mortgage assistance; it also pledges a substantial low-rent public housing program. The Republican pledges continued effort to clear slums and to provide homes for middle and low-income families. But it mentions no target figure nor does it refer to federally supported public housing.

On water pollution abatement, the Republican pledges strengthened federal enforcement powers and federal grants only on a limited scale. The Democrats, in contrast, pledge a system of grants such as has been used in the past to help finance this program.

On the subject of civil defense, both parties stand substantially together. On the subject of area redevelopment, the Democratic party pledges low-interest loans to create new industry. The Republicans, in contrast, pledge federal action "for trose activities which the private sector cannot do or cannot so well do."

On the subject of transportation, the Democrats pledge an expanded air-traffic program, support of the highway program, and assistance for mass transit in metropolitan areas. The Republicans speak generally of promoting "safe, efficient, competitive and integrated transport by air, road, rail and water under equitable, impartial and minimal regulation."

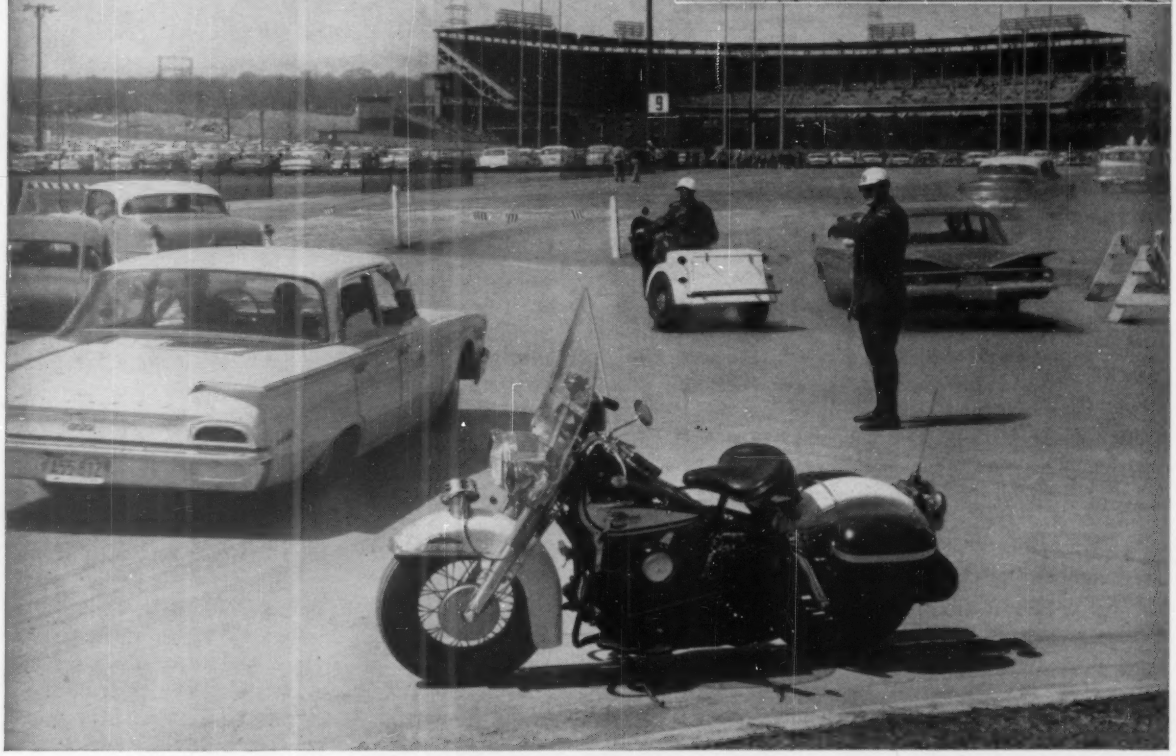
The Democratic plank gives attention to air pollution and, in particular, to the factor of automobile exhausts.

In all, the platforms emphasize that both parties know that local governments exist and will not be taken for granted. We are confident that, whatever the outcome in November, these same municipal leaders will not let their parties forget these independent local governments.

By doing so they will add to the strength of the nation.

# *Stretching the long arm of the law in Milwaukee*

**Milwaukee, Wisconsin** — This metropolitan area of over a million is justly proud of its traffic safety record and its police department. In 1959, the city had the lowest fatality record ever achieved by a community over 250,000. Service and maneuverability of its 80 Solos and 37 Servi-Cars are cited as important factors in Milwaukee's effective traffic control program.



**OPENING DAY FOR THE BRAVES** — It takes only an hour and a half to park approximately 10,000 cars at Milwaukee's County Stadium when officers mounted on Harley-Davidson Solos and Servi-Cars are on the job.

# The force that made Milwaukee famous...

## *moves on Harley-Davidson Servi-Cars and Solos*

Mobility is the key to successful law enforcement! Harley-Davidson police motorcycles supply this maneuverability when only minutes count. They stretch the arm of the law to reach any part of the community quickly whether the trouble spot is traffic, crime, fire or other emergency.

Harley-Davidsons *balance* your effectiveness: *Solos* are the ideal pursuit vehicle. Nothing stops these maneuverable two-wheelers from arriving on the scene of trouble . . . fast. Busy *Servi-Cars* are triple-threats for traffic control . . . parking and meter work . . . residential patrolling. Call your Harley-Davidson dealer, or write Harley-Davidson Motor Co., Milwaukee 1, Wisconsin, for free folder on effective police mobility — the Harley-Davidson way.

***HARLEY-DAVIDSON***
*Police Motorcycles*

*A tractor and rotary tiller mix the sand and soil to make a high-grade playing surface for the Little Leaguers of West Allis.*

## No Sand-Lot Baseball in West Allis

When the Little Leaguers troop out to take part in the great American sport, they want to play on something better than the old-fashioned vacant lot. In West Allis, Wis., Park Superintendent R. L. Lohman gives the youngsters the best of big-league baseball playgrounds by carefully grading the area and then mixing the clay soil with sand.

At one time, he mixed the sand and earth with a drag pulled either by a Jeep or a tractor. However, this left sand on the surface and made unsteady footing, due to the heavy clay subsoil in this area which has caused numerous drainage problems.

Today, he processes the play area with a Seaman-Andwall rotary tiller pulled by an Allis-Chalmers D-14 utility tractor to provide a sandy clay loam. This mixes the two materials thoroughly; using just enough sand provides a first-class playing surface, easy to maintain and pleasant to play on. ◄◄

## Good Shade Trees for Bad

In the Township of Mount Holly, N. J., the Park Commission's Shade Tree Committee is authorized to remove those trees between the curb and sidewalk that are dangerous or troublesome. In general, the hazardous tree is replaced by a new one, of satisfactory type, particularly when the property owner requests it.

Moreover, any property owner may request that a shade tree be planted at the front of his property between the sidewalk and curbing. The Township asks the property owner to request the tree in writing, and list preferred type. The Shade Tree Committee makes its selection based on the width between the sidewalk and curb. Although a strip three feet wide is desirable, small trees can be planted in a strip 18 inches wide.

The Township pays a local tree surgeon to remove the stumps at a price of 75 cents per diameter inch. He furnishes a Vermeer stump-removal machine and operator. Township manager R. H. van Deusen finds that the machine can remove a 36-inch stump eight to ten inches below grade in about one hour. It does not involve sidewalk or curb removal, and the chips fill the hole. ◄◄

## Municipal Cemetery Operation

A study of some 48 municipally owned cemeteries conducted by Vernon J. Birkhimer, Chief of the Richmond, Va., Bureau of Cemeteries and Chairman of the National Municipal Cemetery Conference of the American Cemetery Association, gives some guidance on the way that this municipal service is operating.

His survey indicates that the cemeteries are very definitely within the "official" municipal organization. Only 20% are administered by autonomous boards. In contrast, a separate Cemetery Department administers 34%, the Public Works Department 16%, and various scattered divisions of the local government, the remainder.

### Superintendents

Over 40% of the cemetery superintendents are appointed by the city manager in Mr. Birkhimer's study. This probably is roughly the same number of council-manager cities embraced in his study. Around 5% are appointed by the Mayor and the balance by their various department heads.

The cemetery superintendents average $5,500 per year in this study, and have a maximum salary of $9,000. However, they receive an average of some $500 additional in housing and other allowances.

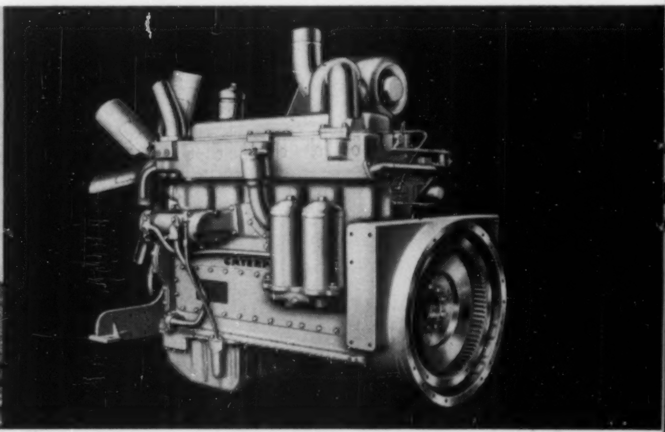
Virtually all the cemeteries surveyed have some sort of plan for perpetual care. In 70% of the reporting cases, this included all of the cemetery areas. In 60% of the cases the city clerk, treasurer, or finance director administers the perpetual care fund.

The cities sell their lots at an average price of about $1.90 per square foot, or about $65 per single grave space. About half permit wooden boxes for interment.

At the graveside, about half provide a lowering device, a little more than one third provide grass, another third, a tent, and a scattering number, chairs, placer, grave boards, lining, cover, trim canvas and casket carriage. ◄◄

# *NEW* CAT NO. 14 SERIES C MOTOR GRADER

## Compact engine plus many other refinements assure top performance, easier servicing, long life



Important changes make up the new Series C No. 14 Motor Grader—big improvements throughout to give you better performance, long life and servicing ease:

***NEW COMPACT 150 HP ENGINE*** The short, rigid block and stress-relieved crankshaft give greater strength and shock resistance. New cylinder head design resists distortion yet has superior cooling characteristics. Large water pump with cast-iron impeller, ceramic seal face, and carbon type seal combined with a 20 per cent increase in radiator capacity improves cooling, lengthens life.

***NEW STARTING ENGINE*** All-weather starting with this new two-cylinder vertical gasoline engine is assured. Replacing the horizontal engine, this design features aluminum pistons and overhead valves for improved performance. Bore is 2.38″, stroke is 2.38″, and compression ratio is 8:1. Over-running clutch in starter pinion prevents damage to starter engine when diesel starts, a year-round starting plus.

***NEW SERVICING EASE*** An advanced fuel system is designed for easier servicing and more efficient operation. Compact fuel injection pumps with barrel and plunger assemblies enclosed in housing help reduce wear, lengthen service life.

**Plus all the features that made the No. 14B the most versatile motor grader in the "big machine" field . . .**

**EXCLUSIVE OIL CLUTCH** —provides up to 2000 hours of service without adjustment, equal to about a year of "adjustment-free" operation.

**DRY-TYPE AIR CLEANER** —removes 99.8 per cent of all dirt from intake air. Can be serviced in five minutes.

**MECHANICAL CONTROLS** —provide easy engagement. "Anti-creep" lock makes blade stay put under load.

**FULL VISIBILITY** —operator has unobstructed view of job even while seated.

Now, all Cat Motor Graders feature the compact engine. Like the new No. 14C, the 85 HP No. 112E, the 100 HP No. 112F, and the 115 HP No. 12E are all designed to give you the highest production at the lowest possible cost. Get the full story from your Caterpillar Dealer. Let him prove by actual demonstration how Caterpillar can save taxpayers' money in your community.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

**CATERPILLAR**

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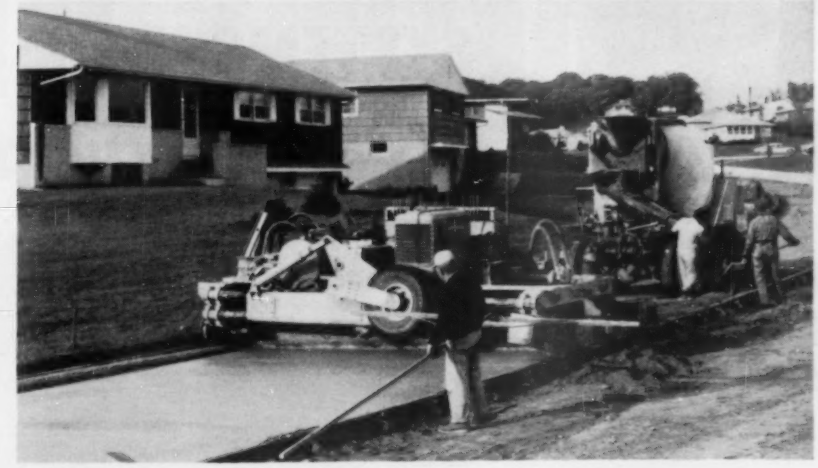
**THE NEW NO. 14C—**
**BEST BUY FOR**
**YOUR TAX DOLLARS**



*It was portland cement concrete all the way, four miles of it, by choice of the residents of this new Edina subdivision.*

# Concrete Streets Win Preference In Edina Subdivision

Streets of portland-cement concrete may cost more to build than those of asphalt but new homeowners in a large subdivision in Edina, Minn., feel that the difference is a good investment. Recently the residents in this subdivision instructed their village government to pave all their streets with concrete.

In the past, Edina had relied primarily on petitions from residents to do this work. Because of the village development pattern, the petitions came on a block-by-block basis rather than by areas.

This particular subdivision was started about six years ago. At the time, it was without trunk sanitary sewer facilities but it did have public water supply. The trunk sewer came two years later with the laterals installed immediately afterwards, since the clayey soil did not permit efficient use of septic tanks.

The subdivision has a strong neighborhood association with active leadership. After several meetings, the association and village officials worked out an assessment procedure that permitted paving the entire area at once with concrete.

The village agreed to subsidize 10% of the cost; the residents, in turn, agreed to absorb part of the normal assessment costs of the long side of corner lots. The result was four miles of concrete pavement—every street in the new subdivision. ◄◄

# Small Bridge Replacement Simplified

Two-piece precast concrete pile caps permit the erection of single-span, precast concrete bridge decks in one day. This type of construction eliminates the placing of concrete in the field. The caps, designed by M.O.R.E. Service of Lincoln, Neb., are made in two interlocking pieces which are L-shaped in cross section.

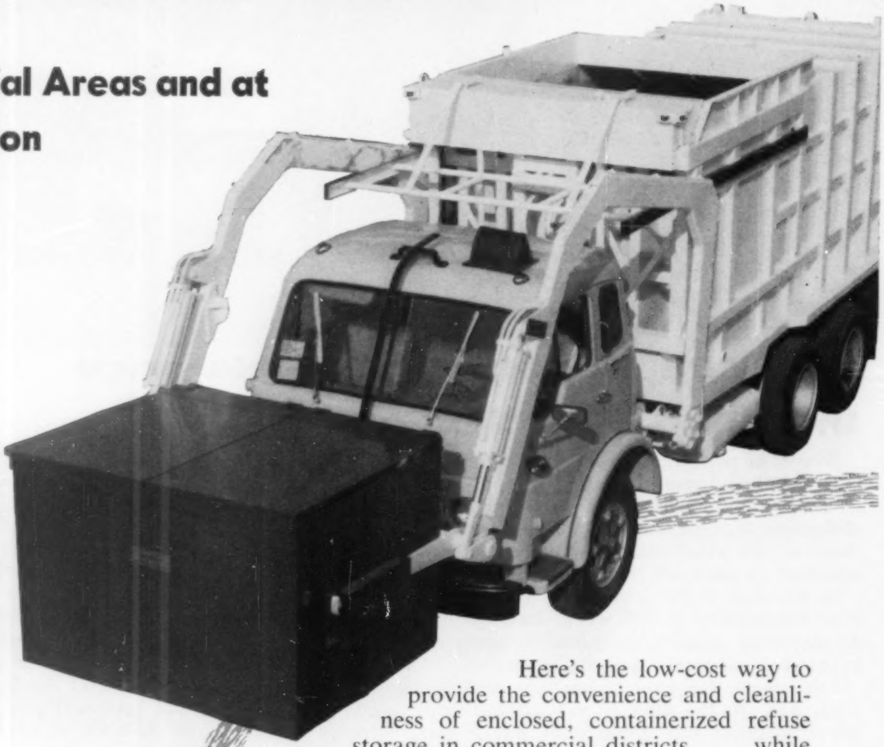
Several advantages result from separating the cap into two pieces. First, the weight of each L-shaped piece of a 24-foot-long cap is under four tons; second, the piece that is set upon the piling has the pile sockets visible from the side and, third, the final piece of the cap is held in place by horizontal bolts which pass through both pieces and clamp the interlocking pieces to the pile heads.

This patented two-piece precast cap can be adapted to piles of any type of material. They are made with pressure grouting holes so that all space around the pile heads within the sockets may be filled with non-shrinking grout. The bridge deck may be placed on the caps immediately after they have been set and bolted in place. ◄◄

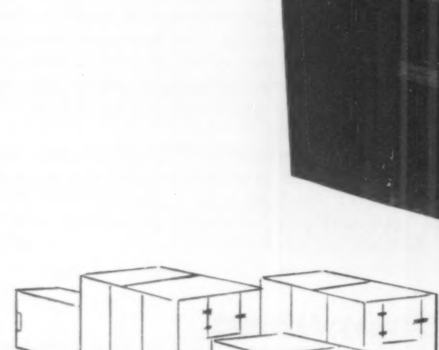
*A Seward County, Neb., bridge crew utilizes the two-piece precast concrete pile caps on a bridge replacement job. Note the viisiible pile sockets on the piece already in place.*

# TWO SYSTEMS IN ONE WITH
# *No. 1 Containerization...*

**. . . In Commercial Areas and at Bulk Accumulation Points**



Here's the low-cost way to provide the convenience and cleanliness of enclosed, containerized refuse storage in commercial districts . . . while you cut collection costs to the bone. The one-man DEMPSTER-DUMPMASTER handles one-half through eight cu. yd. containers, and makes quick work of downtown and shopping center collection routes . . . handling hundreds of yards of refuse in a day.



**A wide variety of containers, ranging from one-half through eight cu. yd. capacity, is available as standard equipment.**

**Write for Free**

**DEMPSTER DUMPMASTER® SYSTEMS**

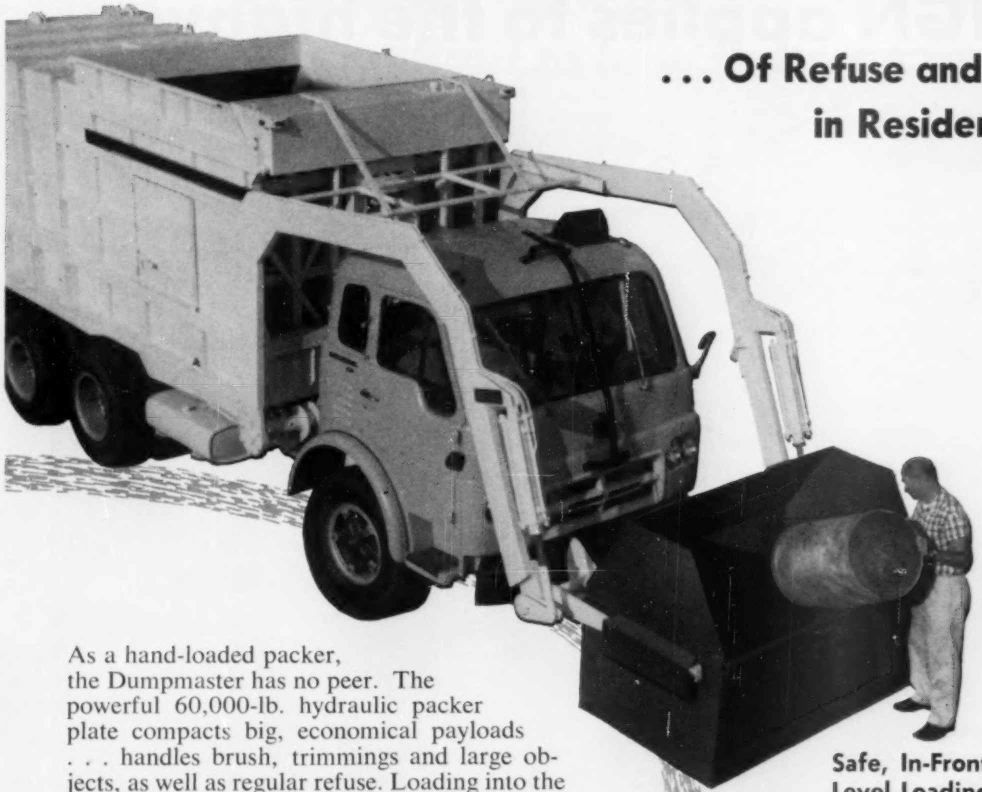
**DEMPSTER**

Mfd. by DEMPSTER BROTHERS Inc.

# THE DUMPMASTER

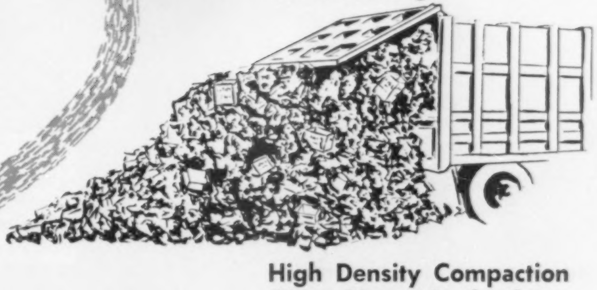
## *No. 2 Manual Loading...*

**...Of Refuse and Trimmings in Residential Areas**



As a hand-loaded packer, the Dumpmaster has no peer. The powerful 60,000-lb. hydraulic packer plate compacts big, economical payloads . . . handles brush, trimmings and large objects, as well as regular refuse. Loading into the low-front, manual-collection container is easier for the crews . . . safer, too, since they're always out in front in the driver's view. Investigate the Dumpmaster . . . the world's most versatile mechanized refuse collection system.

**Safe, In-Front, Low-Level Loading**



**High Density Compaction Gives Bigger Payloads**

**Brochure**

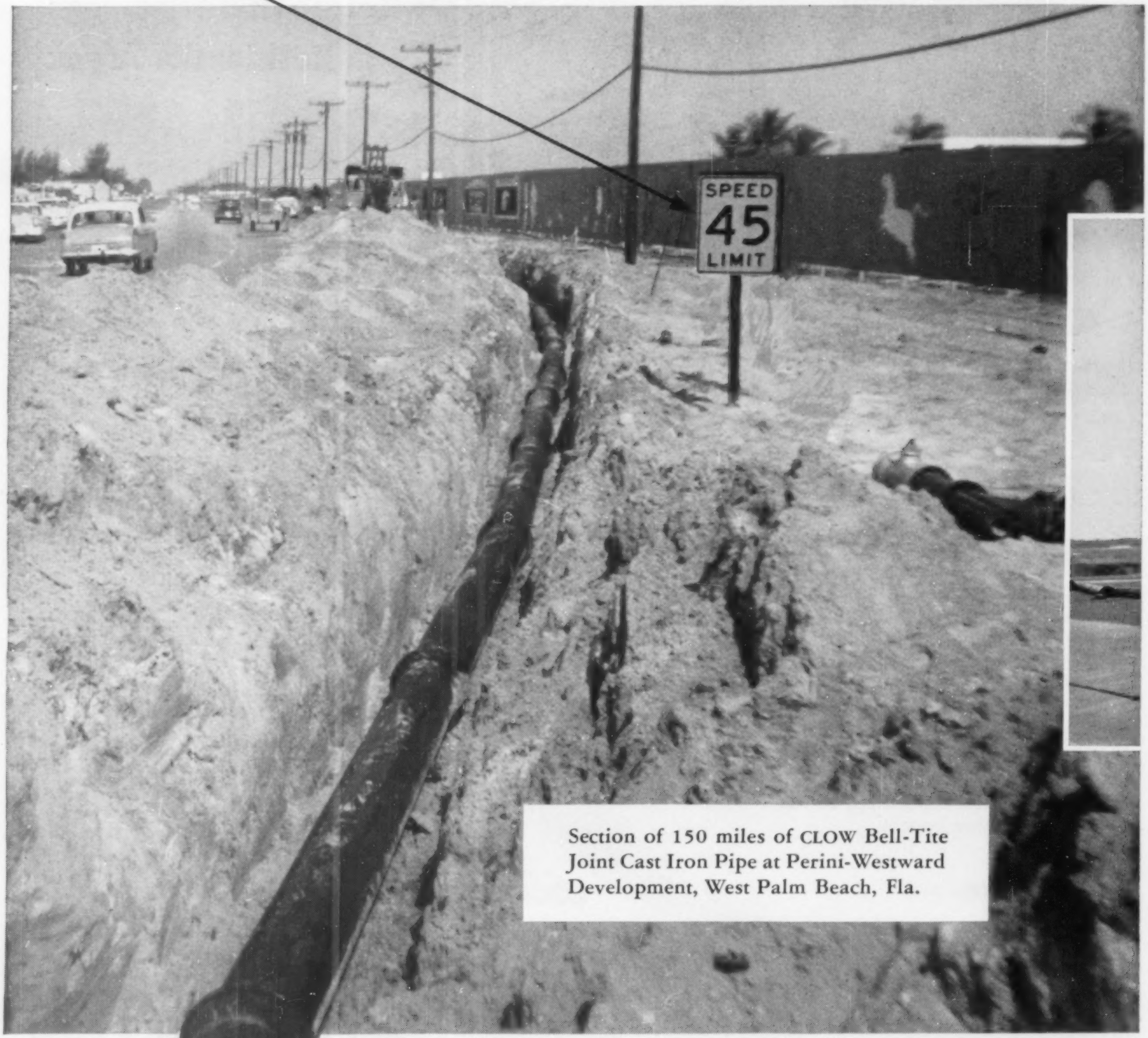
**BROTHERS**

**Dept. AC-9, KNOXVILLE 17, TENN.**

**DEMPSTER DUMPMASTER® SYSTEMS**

# CLOW

## This SIGN applies to the highway



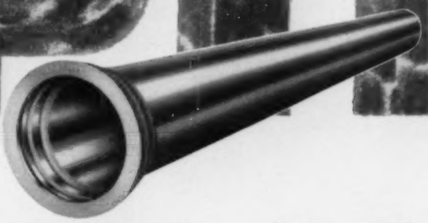
Section of 150 miles of CLOW Bell-Tite Joint Cast Iron Pipe at Perini-Westward Development, West Palm Beach, Fla.

---

Clow Cast Iron Pipe Plants are located at

**BENSENVILLE, ILLINOIS • BIRMINGHAM, ALABAMA • COSHOCTON, OHIO**

# *CAST IRON* PIPE



## *There is no limit to how fast you can lay*

# CLOW Bell-Tite® JOINT CAST IRON PIPE

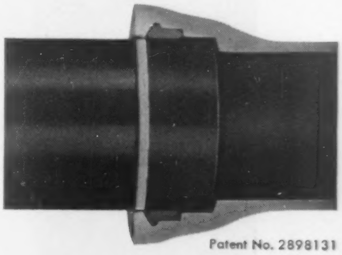
You can install CLOW Bell-Tite Joint Cast Iron Pipe as fast as you can dig a shallow trench. Photo shows the back hoe which clawed open the trench lowering a length of Clow pipe into it.

Over 150 miles of Clow Bell-Tite Joint pipe are the life lines of the water and sewage facilities for this Perini-Westward Development at West Palm Beach, Fla. Time-saving installation plus the economy of material—no accessory but a single molded rubber gasket—are important factors in this $4,000,000 waterworks project installation. One of the owners of this "City within a City" is Louis R. Perini, chairman of the board of the Milwaukee Braves and president of the Perini corporation.

CLOW Bell-Tite Joint Cast Iron Pipe can speed your installations, too. Let us tell you about its many advantages.

### *Clow Bell-Tite Joint Pipe saves time and money*

Assembly is easy and rapid. Just wipe the joint clean, lubricate and push spigot into the bell. When yellow stripe is no longer visible, joint is bottle tight. A single rubber gasket is the only accessory. There are no bolts, no nuts, no followers, no couplings, no extras.



Patent No. 2898131

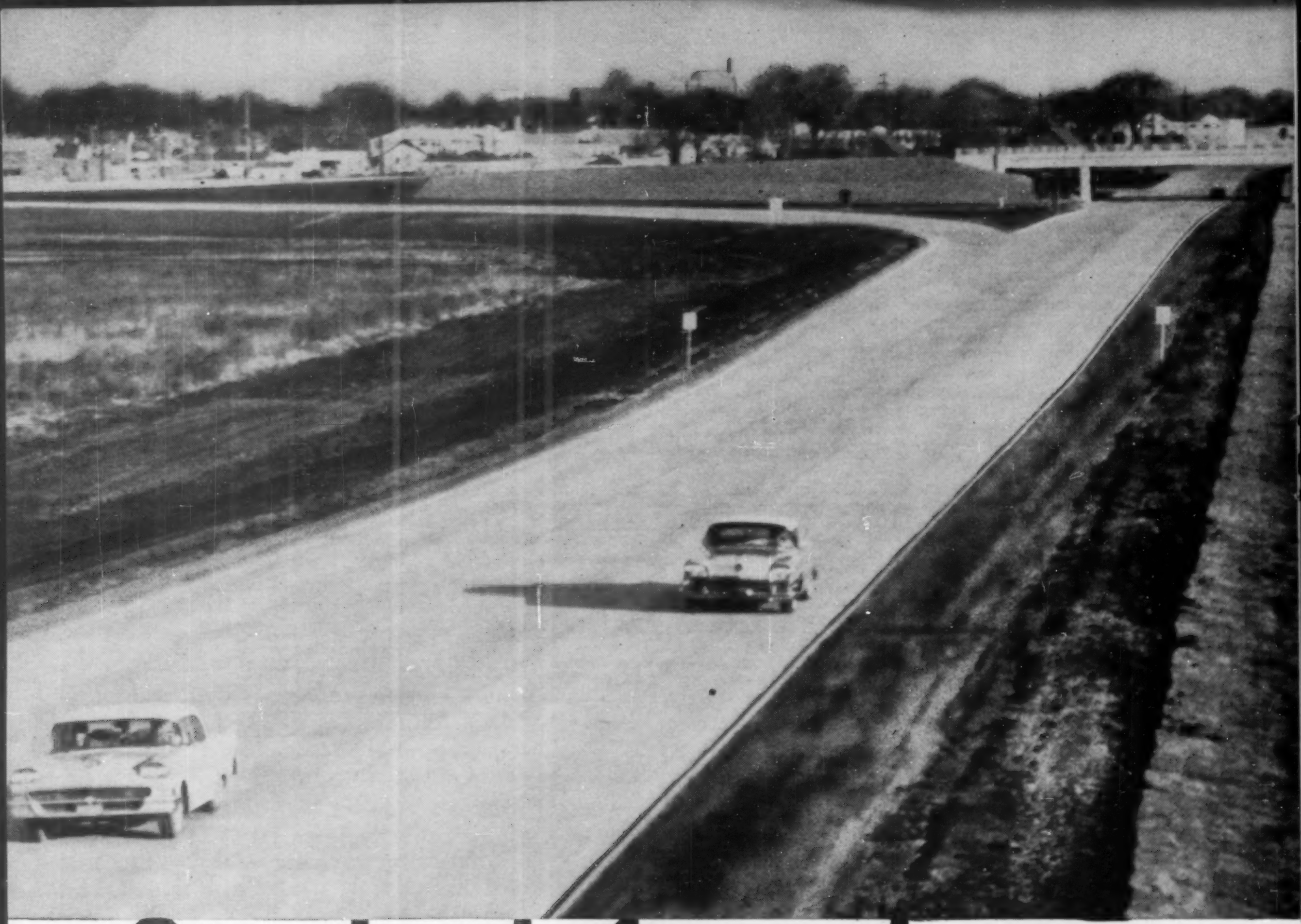
**CLOW** CAST IRON PIPE

**JAMES B. CLOW & SONS, INC.**
201-299 North Talman Avenue, Chicago 80, Illinois

*Subsidiaries:*

Eddy Valve Company
Waterford, N.Y.

Iowa Valve Company
Oskaloosa, Iowa



# Steel reinforced ...to stand up

**PROJECT:** Portion of Northwest Expressway just west of Cumberland Avenue Interchange, Cook County, Illinois

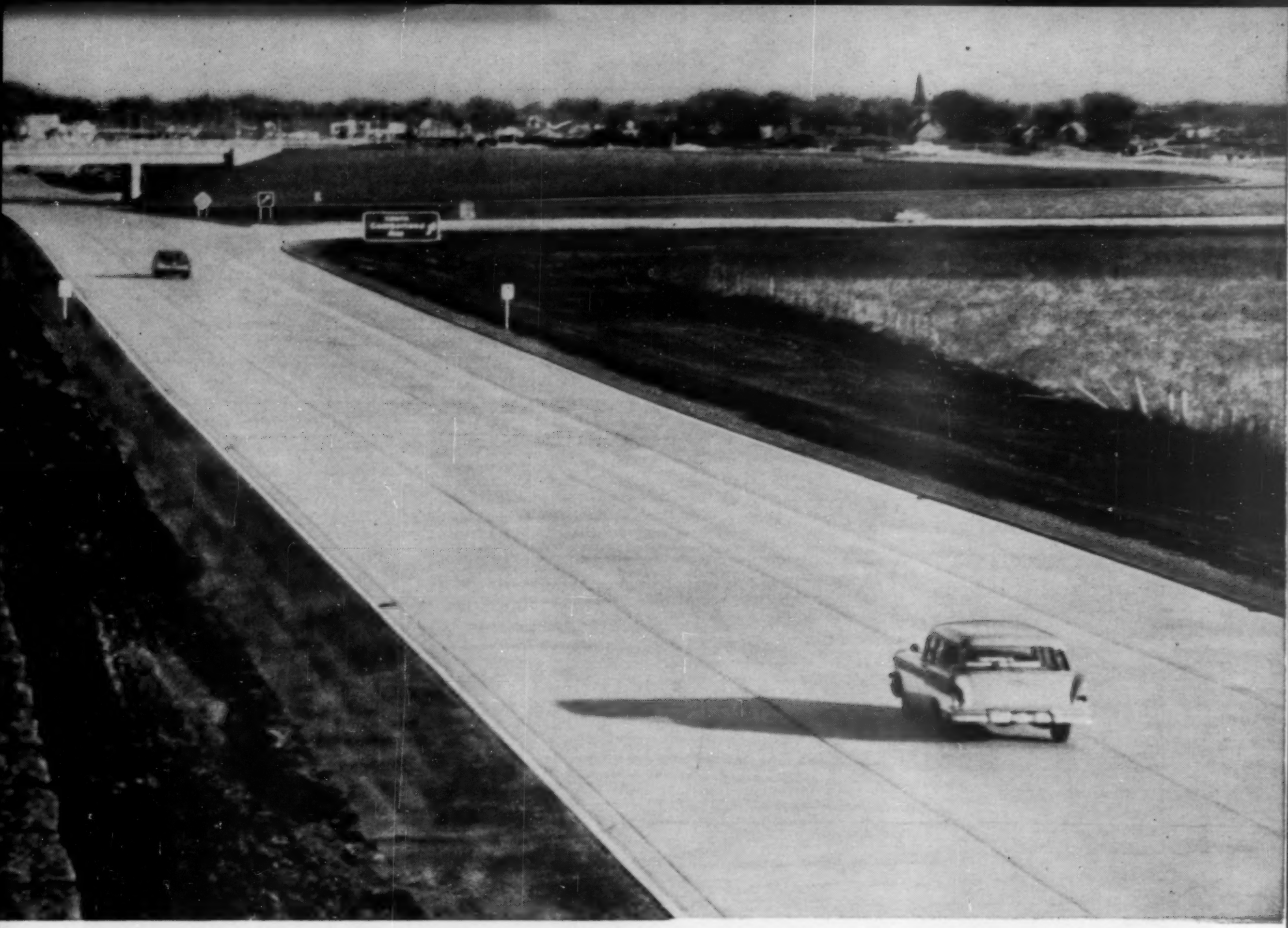
**OWNER:** Cook County Department of Highways

**CONTRACTORS:** Arcole Midwest Corp., Evanston, Illinois

**WIRE FABRIC DISTRIBUTOR:** E. W. Zimmerman, Inc., Chicago, Illinois

Steel

This mark tells you
a product is made of modern,
dependable **Steel.**



# under the hi-speed pounding of modern traffic

Cook County, Illinois has opened the first section of its new Northwest Expressway. And, like other expressways built under the authority and supervision of that county's Department of Highways, it is steel reinforced.

An anticipated daily count of 31,000 vehicles is expected on this newly opened 4½-mile section which extends from Foster & Central Avenues to the Illinois Toll Highway. This figure indicates what this already busy strip will be subjected to as the traffic load gets heavier. And it points up the importance of building into all new roads and highways the strength it will take to stand up under the almost ceaseless pounding of modern hi-speed traffic in the years ahead.

Highways reinforced with steel have a balanced design in that all edges and corners are fully protected. USS American Welded Wire Fabric accomplishes distributed load transfer and reduces stresses about 30% which accounts for the truly superior performance of reinforced concrete over non-reinforced concrete. Reinforced pavements provide a safe, smooth riding surface that lasts.

USS American Welded Wire Fabric is today stronger than ever. Minimum tensile strength is now 75,000 psi and minimum yield point is now 60,000 psi. It has reserve strength for heavier pounding and it is available in a completely machine fabricated form, ready for immediate placement. For more information, write to American Steel & Wire, 614 Superior Avenue, N. W., Cleveland 13, Ohio. *USS and American are registered trademarks*

USS

**American Steel & Wire**
**Division of**
**United States Steel**

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, Distributors Abroad

SAFETY
KNOWS
NO
SEASON
... WITH
PERMA-LINE

This is what makes thermoplastic PERMA-LINE different from old fashioned marking methods: *It's there when you need it most,* whatever the season.

For long lines or crosswalks, in any climate, PERMA-LINE is unsurpassed for high visibility, durability and *guaranteed* safety protection.

PERMA-LINE applies with amazing speed. It dries almost instantly, without disrupting traffic. That's why modern, all-season PERMA-LINE—and only PERMA-LINE—can meet the strict standards of safety demanded by the new Interstate Highway System.

For economy and permanence, Traffic Engineers know: "Whatever the season, if there is a reason for *any* safety marking, there is a better reason for PERMA-LINE."

**perma-line**

**VEON CHEMICAL CORPORATION • 22-09 BRIDGE PLAZA NORTH • LONG ISLAND CITY 1, N.Y.**

*For your free copy of our brochure showing latest installations and specifications, return this coupon.*

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☐ ADDRESS ____________
☐ CITY ____________ STATE ____________

*(Continued from page 5)*

radio and television coverage, publication of articles, special luncheons and the presentation of plaques to the "Top Ten Public Works Men-of-the-Year." A public-service film entitled, "Headline for Harper," has also been prepared especially for this observance.

As part of the nationwide observance the APWA (and Kiwanis International) will select and honor ten public works officials as the "Top Ten Public Works Men-of-the-Year." Any non-elective official, who is an employee of a federal, state, county or municipal government and who is responsible for one or more of the following major subdivisions of a governmental agency, is eligible for selection, providing he devotes the major portion of his time and efforts to the exercise of these responsibilities: the design, construction, maintenance, and/or operation of a street or highway system, water supply (treatment or distribution system) sewerage system or sewage treatment plant, refuse collection or disposal system, public buildings, drainage or flood control facilities, an airport, harbor, or other type of public works installation.

Anyone may submit a nomination by sending the nominee's name with his title and address to the American Public Works Association, 1313 East 60th Street, Chicago 37, Illinois. The above information is all that is needed for making nominations. Supporting data to be used by the judging committees will be secured by the Association. All nominations and supporting data must be postmarked not later than midnight, September 15, 1960. ◄◄

## Carrier-Current System in the Sierras

The largest single carrier-current system sold by the General Electric Communication Products Department at Lynchburg, Va., in the company's 38 years in the carrier-current field, is the $100,000 set-up for the new San Francisco Hetch Hetchy hydro-generating project at Cherry Dam in the Sierra Nevadas.

Use of carrier-current on the 230-kv power lines provides all the necessary channels for telemetering, load control, transfer-trip relaying, directional-comparison relaying, supervisory control of switches and circuit breakers. It provides the voice communication for the system's five stations. ◄◄

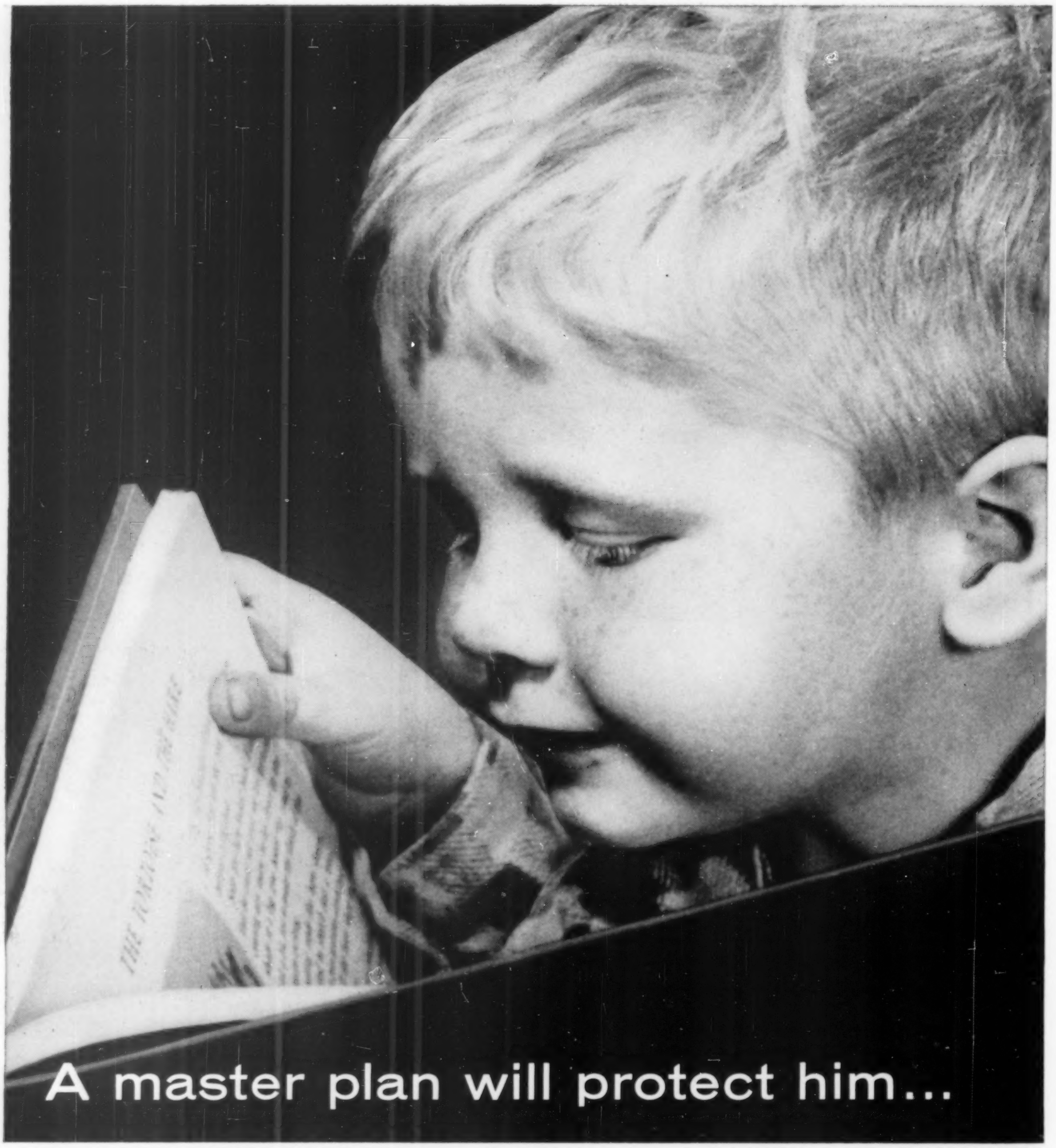
Christmas next...

# Decorate Safely with ALCOA FOIL!

We say that ALCOA® Foil and Christmas just naturally go together. And civic and business leaders of more than 400 communities agree. Again this year, they'll deck their towns *safely*, inside and out (schools, streets and skylines), with spectacular foil decorations—glittering foil trees, garlands, wreaths, scrolls, pole wrappings, sparkling skyline sets. ■ Foil trees by many manufacturers and street decorations by The L. C. Williams Co., Houston 21, Texas, are equally striking day or night. Polished, feather-light ALCOA Foil reflects color and light with ice-clear brilliance . . . makes the most of any location. ■ Outdoors or in, it will be a safer Christmas in many communities. More and more, you'll see glittering foil Christmas trees—in schools, churches, community buildings. Foil trees are fireproof—dismantle easily for storage—can be used year after year. ■ **ALCOA does not make aluminum foil street decorations or Christmas trees,** but we'll be happy to put you in touch with the people who do. For more information, write ALUMINUM COMPANY OF AMERICA, INDUSTRIAL FOIL DIVISION, 1678-J Alcoa Building, Pittsburgh 19, Pa.

**ALCOA ALUMINUM**
INDUSTRIAL FOIL

For exciting drama watch "Alcoa Presents" every Tuesday, ABC-TV, and "Alcoa Theatre" alternate Mondays, NBC-TV


A master plan will protect him...

*Complete* fire protection for life and property in *all* of its schools is Chicago's goal for 1960. And phase one of this sweeping program is already well under way!

More than 1000 Gamewell Master Fire Alarm Boxes have been ordered at city expense so that one may be installed in front of each of the city's public, parochial, and private schools. These Master Boxes, which will provide direct lines to Fire Department Headquarters, are the heart of a *master plan* drawn up and *activated* by the Mayor, Fire Department, and City Officials.

This plan is the result of a thorough investigation of all available protective facilities. The most positive and practical solution proved to be Gamewell Coded Master Boxes.

To guard against public apathy, the city passed an ordinance requiring that all schools have automatic fire alarm protection directly connected to the municipal system. And "must" deadline of Feb. 1, 1961 was set for *complete* compliance with the ordinance.

The Gamewell Company is proud to be a part of this outstanding effort and fervently hopes that it will stimulate similar action in towns and cities across the nation. THE GAMEWELL COMPANY, 1268 Chestnut Street, Newton Upper Falls 64, Mass. *A Subsidiary of E. W. Bliss Company.*

**BLISS**

**Gamewell**®

FIRST... WHEN SECONDS COUNT

## OUR MUNICIPAL NOTEBOOK

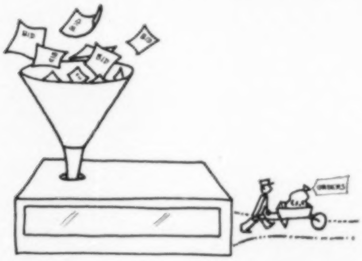
### THE AVERAGE WATER SYSTEM

. . . has 3½ miles of water main, 12½ valves, and 6¾ hydrants per 1,000 people served. The pipe used per 1,000 people varies from 5 miles in cities of 10,000 or less to 1½ miles in cities of more than 500,000. The valves used vary from 9 to 17; and the hydrants from 6 to 8½.

* * *

### A CENTRAL PURCHASING AGENCY

. . . . will help your city eliminate the indiscriminate and often irresponsibly issued requisition for materials. It also helps keep prices at a more realistic level and assists in standardizing the use of materials without interfering with the various service departments. When Robert K. Lowry, Fort Lauderdale, Fla., gets prices for needed material, he does it by using:



- *listed prices, or*
- *negotiated prices, or*
- *competitive bids.*

* * *

### PARK DEVELOPMENT

Hayward, Calif. (population 73,125) requires contractors to pay a fee of $120 per house in every subdivision that is annexed to the city. The purpose of this fee is to defray city expenses involved in providing capital improvements such as parks, firehouses, and libraries in these new subdivisions. Most of the revenues acquired through the fee have been expended in acquiring park lands in the newly developed and annexed areas.

Hayward's master plan anticipates 1½ acres of parks for each 1,000 residents. The present program is designed to provide one four-acre neighborhood park for every 5,000 people to be located within walking distance of their homes. It furthermore provides for one 18-acre district playground per 20,000 people to be located within a 1½-mile radius.

As soon as a subdivision proposal is considered, City Manager Raymond E. Doran starts negotiations for a pre-selected park site. In the past four years, eight park sites have been acquired in newly annexed subdivisions through revenues from the aforementioned $120 fee. This has added a total of 34 acres of park land to the city. Park development is done by the Hayward Park and Recreation District to which sites acquired by the city are leased. Four of the eight recently acquired park sites have already been either partially or wholly developed by the Park and Recreation District.

* * *

### TO CARE FOR TREES

. . . in Dearborn, Mich., Mayor Orville Hubbard decided that there was merit in a contract with a company specializing in tree maintenance. The city's contract with the Asplundh Tree Expert Company, Jenkinstown, Pa., calls for removal of trees in poor condition, trimming of good trees to provide ample clearance for street lighting, pedestrian and vehicular traffic, and storm-damage clearance.

* * *

### FOR STREET REPAIRS USING CONCRETE

. . . don't overlook the great convenience and flexibility of truck-mounted transit mixers. San Diego has three three-yard Whiteman Champion truck mixers mounted on short-wheelbase Ford truck chassis. They are used to repair curbs, sidewalks, replace concrete removed for pavement cuts and similar duties. San Diego has discovered that about 30% of its repair jobs require only a half cubic yard of concrete; 60% require one cubic yard; and only 10% require more than three cubic yards.

**If you want more information on these topics, or any other municipal problem, drop a note to:**

**The Editors**
**THE AMERICAN CITY**
**470 Park Avenue South**
**New York 16, New York**

### REDUCED TAX-COLLECTION COSTS

Mount Holly, N. J., combined its tax collector's and treasurer's office under one department which reports to Township Manager R. H. van Deusen. All funds are accompanied by machine-validated slips to insure the tightest control possible. To continue this machine accuracy, the township installed a Burroughs Sensimatic accounting machine to handle all tax billing, tax crediting and cash distribution, budgetary accounting, payroll and general ledger.

* * *

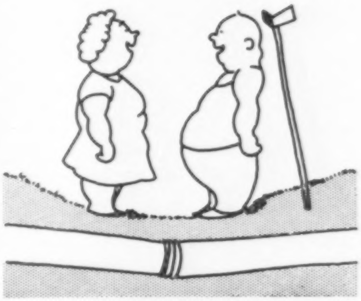
### DOWNTOWN PARKING

. . . in San Mateo, Calif., came into being through the activities of local merchants who agreed to assessment-district financing. Under this plan, only properties within 600 feet of the lots receive assessments. Three zones were established that pay 50%, 30% and 20% of the prorated cost. The lots cost $3,840 per car space, for 183 spaces.

* * *

### UNDERWATER SEWERS

. . . was virtually the way that the little city of Ship Bottom, N. J., had to build its entire sewer system. In this resort community, the water table is frequently from two to three feet from the surface. To provide a bottle-tight sewer system, the city used Johns-Manville Transite pipe with Ring-Tite Couplings. The flexibility of the couplings provides protection against ground movement.



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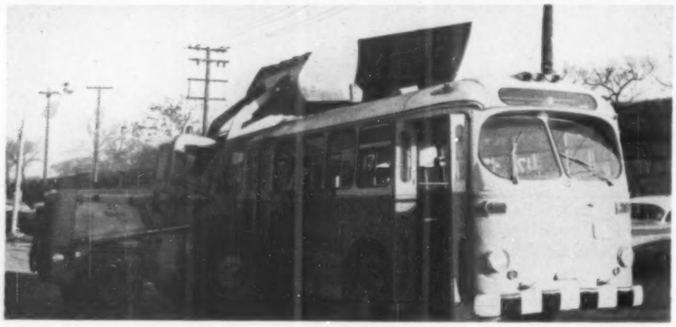
### THE FIRST SOIL-CEMENT STREET

. . . in eastern Washington was built in Clarkson under the direction of City Engineer Eugene W. Asselstine. ◀◀



*A front-end loader dumps up to 10,000 pounds of salt through the roof "door" (left) into a storage bin which in turn continually feeds, by gravity, the salt spreader mounted inside and to rear of the bus (below).*

## We Use a Bus For Ice Control

The Village of Oak Park, Ill., made several improvements to its snow fighting operations during 1959 but notable is the use of a bus for salt spreading.*

For new ideas on salting we visited our local bus company and talked with the management at the Chicago Transit Authority. Both showed us buses which they had converted to salt spreaders. These were quite satisfactory for their needs, but not for us. We wanted a quick-loading, continuous spreading unit capable of handling bulk salt.

For $250 we purchased a bus from the West Towns Bus Company, a suburban transit company located in Oak Park. Then we started remodeling the inside. The completed salt bus is tailor-made for our needs. A 10-foot-long "door" in the roof permits the use of either our Hough Payloader or Tractomotive front-end loader to dump bulk salt into a built-in hopper which holds over 10,000 pounds. The aluminum-clad hopper floor is sufficiently elevated and sloped to feed the salt into a Tarco "Scotchman" spreader mounted inside the bus at the rear end. No bulky unit hangs outside the bus and an outside spotlight illuminates the spreading.

We painted the entire bus a two-tone white and orange color with prominent lettering telling one and all that this brightly painted vehicle is for snow and ice control in the Village of Oak Park. The final step consisted of reorganizing our salt routes, assigning the bus to the long, wide streets and boulevards and leaving the difficult areas to the more maneuverable trucks.

Other improvements resulting in a more efficient operation include:

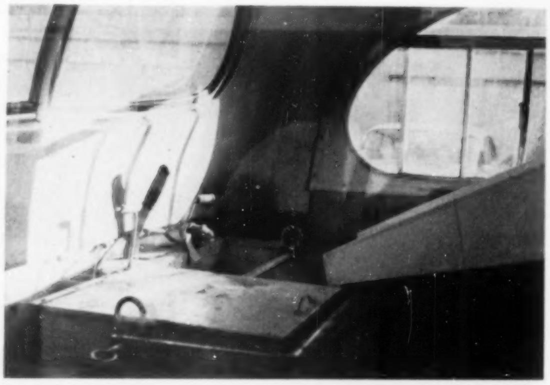
**Full utilization of contract forces for loading and hauling snow in the major business districts.**

**A shift from bagged salt to bulk.**

**Preparation of a pamphlet entitled "Snow and Ice Control Procedures for the Village of Oak Park."**

**Assignment of sidewalk plowing responsibility to the Forestry Division.**

**Cooperation from the Cook County Forest Preserve to provide disposal areas for snow.**



These changes and innovations will help us do a better job this coming winter, but we will continue our search for better ways of doing the job.

FRANK R. SMILEY
*Assistant to the Village Manager*
*Oak Park, Ill.*

Mr. Smiley recently left Oak Park to assume the position of City Manager in Springfield, Ore.

## Street-Cleaning Practice In Congested Areas

New York's congested garment district, the Hudson River shipping facilities, Times Square with its heavy pedestrian traffic and both high-rent apartment houses and slum dwellings all form part of a recently established 1,120-acre field laboratory. The Department of Sanitation chose this 1.75-square-mile area of Manhattan's West Side because its diversity produces most of the conditions with which sanitation personnel have to contend.

Commissioner Paul R. Screvane is planning research in the area which will include studies of the sources of street dirt and refuse, public attitudes, frequency of collections, snow removal, staff and personnel requirements and whether centralized or decentralized housing of equipment is preferable.

In addition, tests on new equipment will be made in the area as well as experimental work in connection with a proposed new manual on district operations to be used as a training aid. ◄◄

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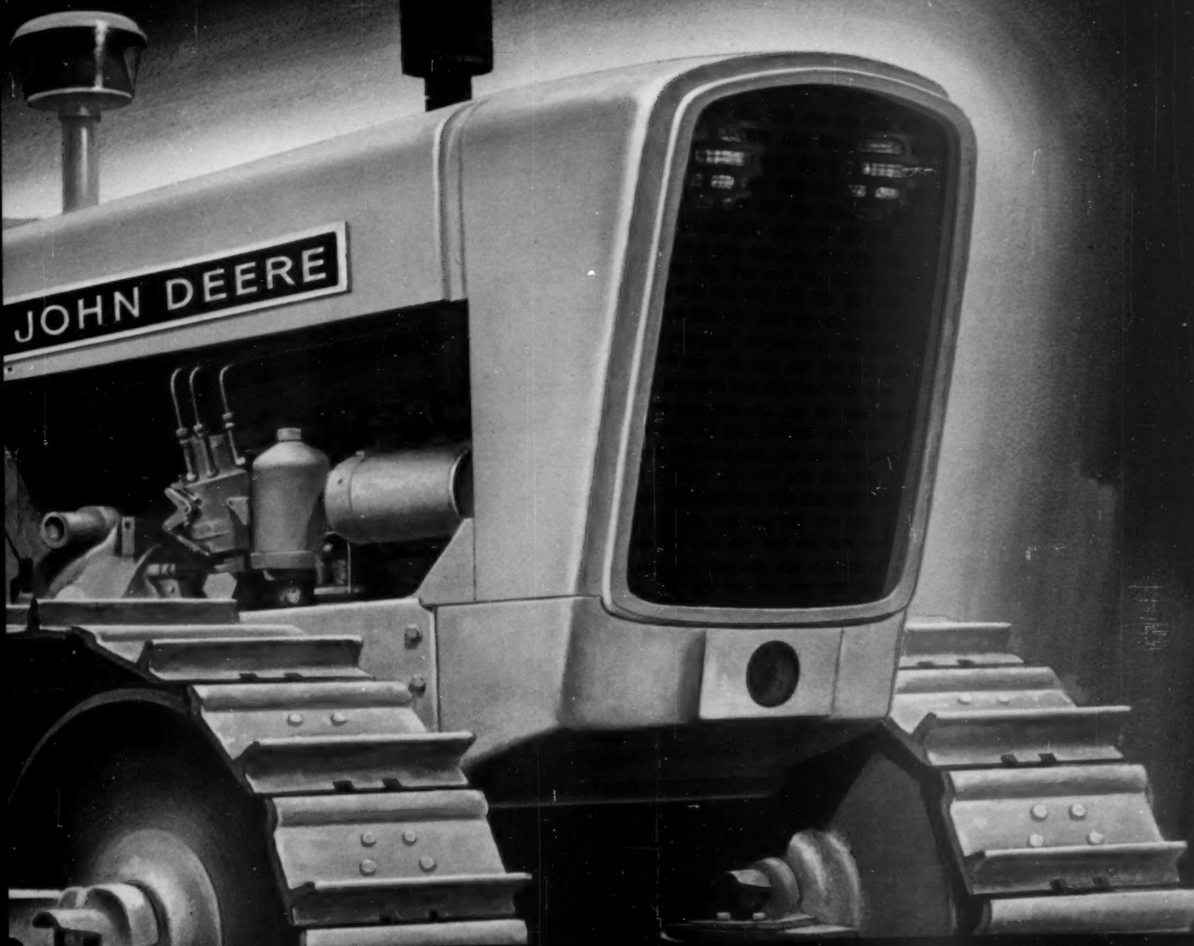
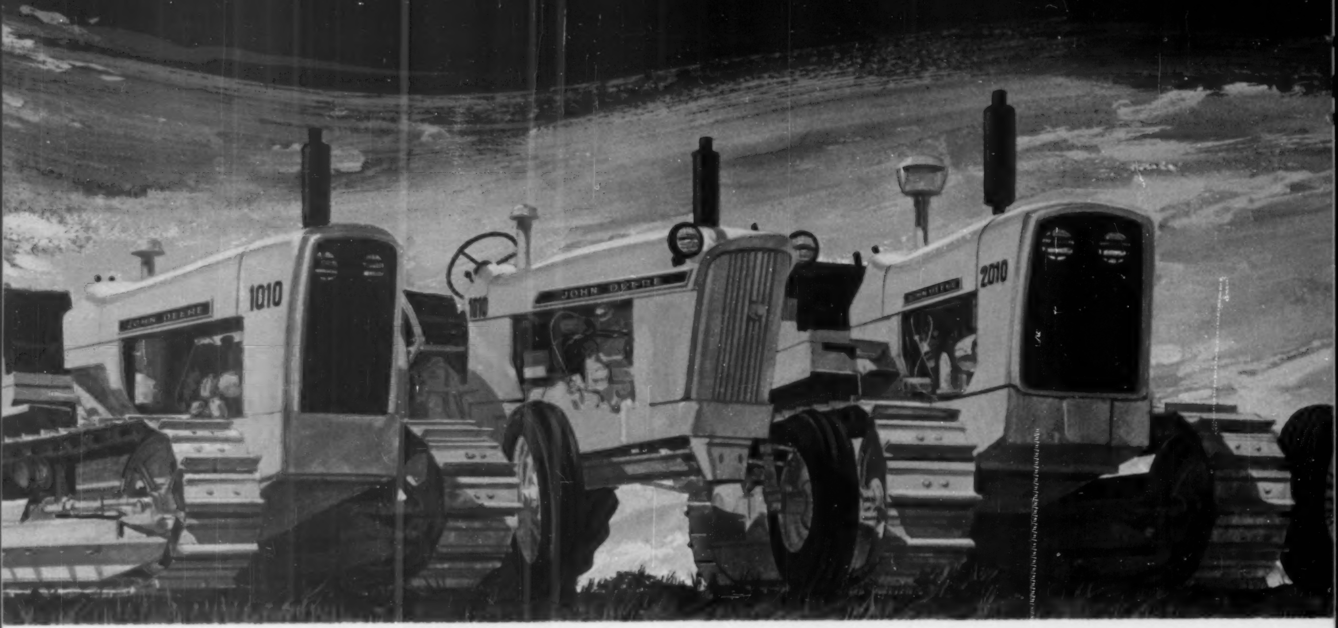
*The cities of Ferguson, Mo., and Alton, Ill., also use buses for their salt-spreading operations.

# *Announcing:* a NEW GENERATION of POWER



# a NEW GENERATION

## 1010 · 2010 · 3010 · 4010 Tractors



*New tractors and attachments! New ideas in design and manufacture! Six completely new tractors, ranging in size from 40 to 85 engine horsepower will be offered with the Ten-Ten series first off the line. New tractor loaders, bulldozers, backhoes, and a variety of other equipment give the fleet owner and single-unit operator more to work with . . . more to profit by.*

*John Deere engineers threw away the book to bring you these new power units. Years of research, development, and testing have combined the best proved engineering principles with some of the freshest ideas in the industry today. The New Generation of Power is here!*

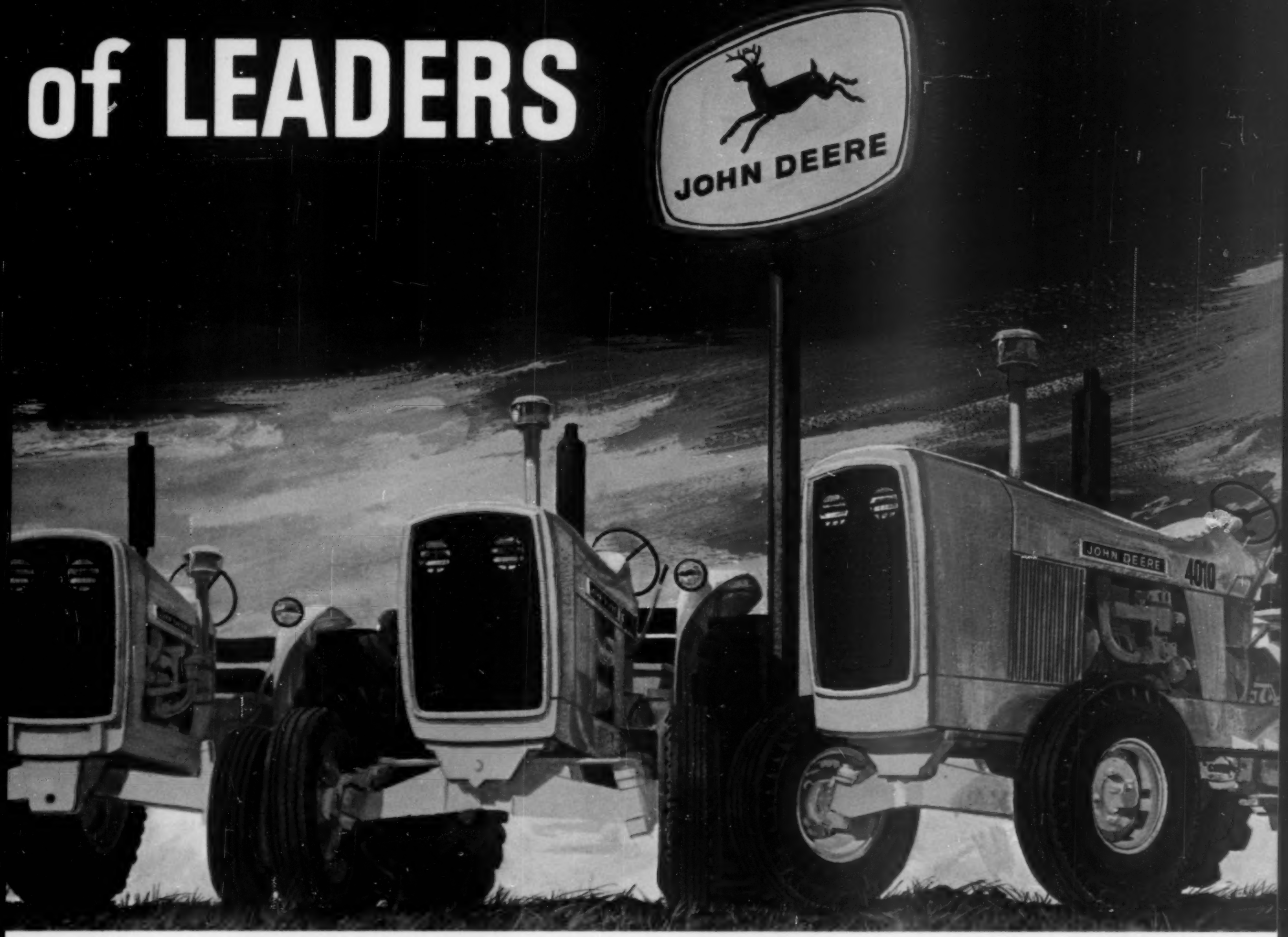
### High Productivity

More usable horsepower in each tractor size—that's the advantage earthmoving contractors, pit operators, landscapers, and construction men will find in Deere power. More usable horsepower means more work per dollar invested. Coupled with fresh engineering approaches on operator efficiency, comfort and convenience, you'll speed production on a wider range of jobs.

### Balanced Performance

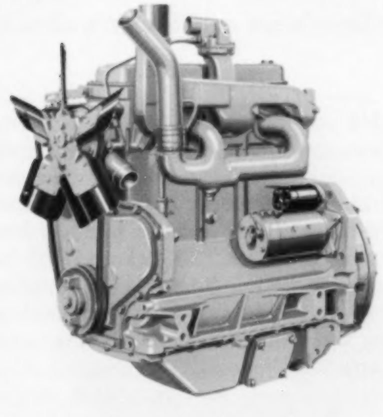
John Deere power—usable power—is day-in, day-out performance. Tractors, engines, transmissions are quality-made for full-day productivity, day after day, on job after job. Their hydraulic systems are pressure-stressed to handle continuous maximum loads without fatigue. In every respect, you can count on cost-cutting performance in this New Generation of Leaders.

# of LEADERS



### New power for profit

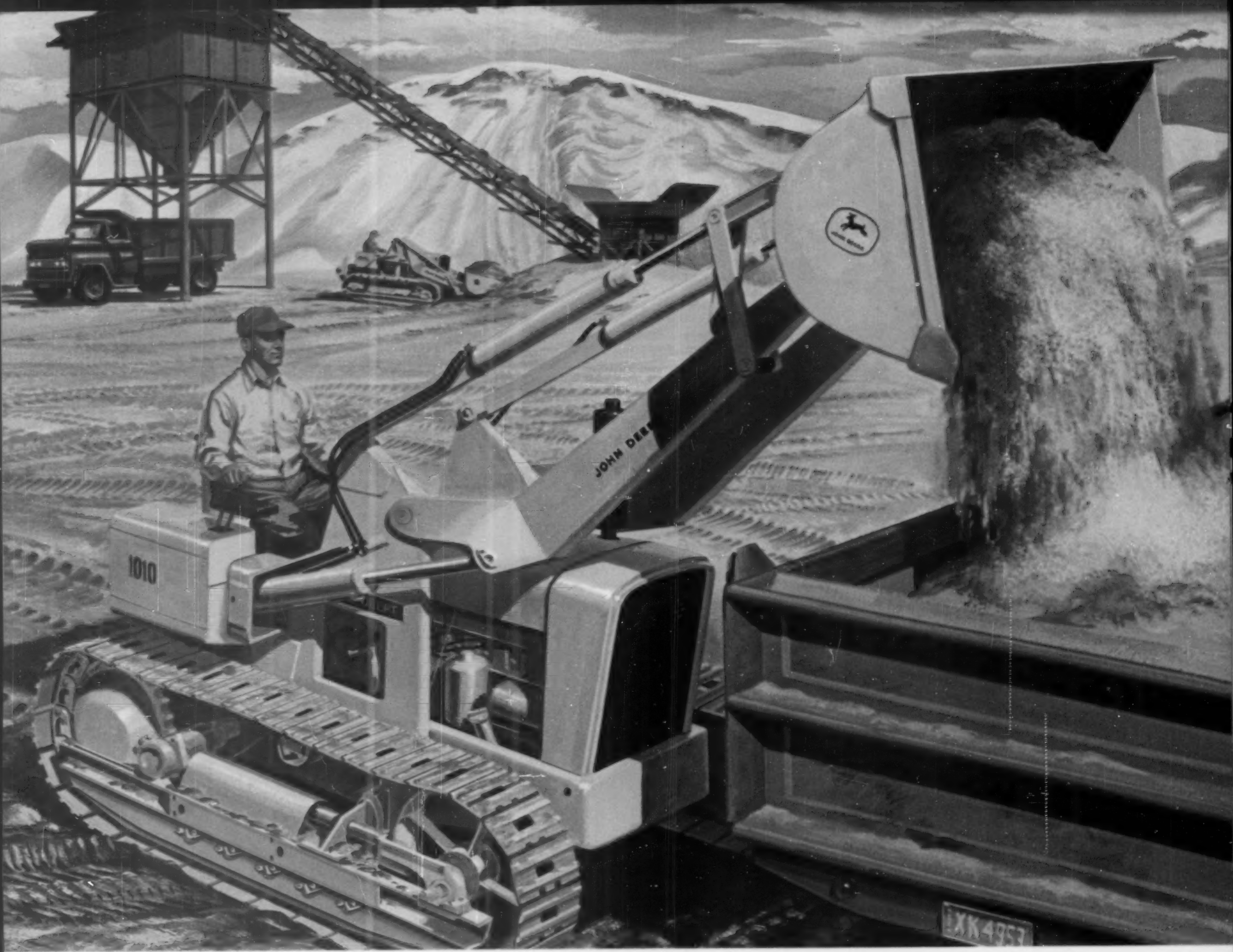
## with John Deere's wide-range power concept



*Gasoline or Diesel • 4 or 6 cylinders*

Completely new tractor engines, Deere designed and built, provide a new kind of performance—wide-range power—for every construction use. True variable-speed engines offer flexible, efficient power throughout the full throttle range. Coupled with transmissions providing a wide range of application-matched speeds, these new 4- and 6-cylinder engines put the new John Deere power train far ahead in horsepower efficiency, lugging ability and balanced performance.

There is big news in hydraulic power, too. Pump designs include an advanced type new to the earthmoving industry. Plenty of pump capacity, plenty of smooth, responsive hydraulic power insures efficient operation on every job.

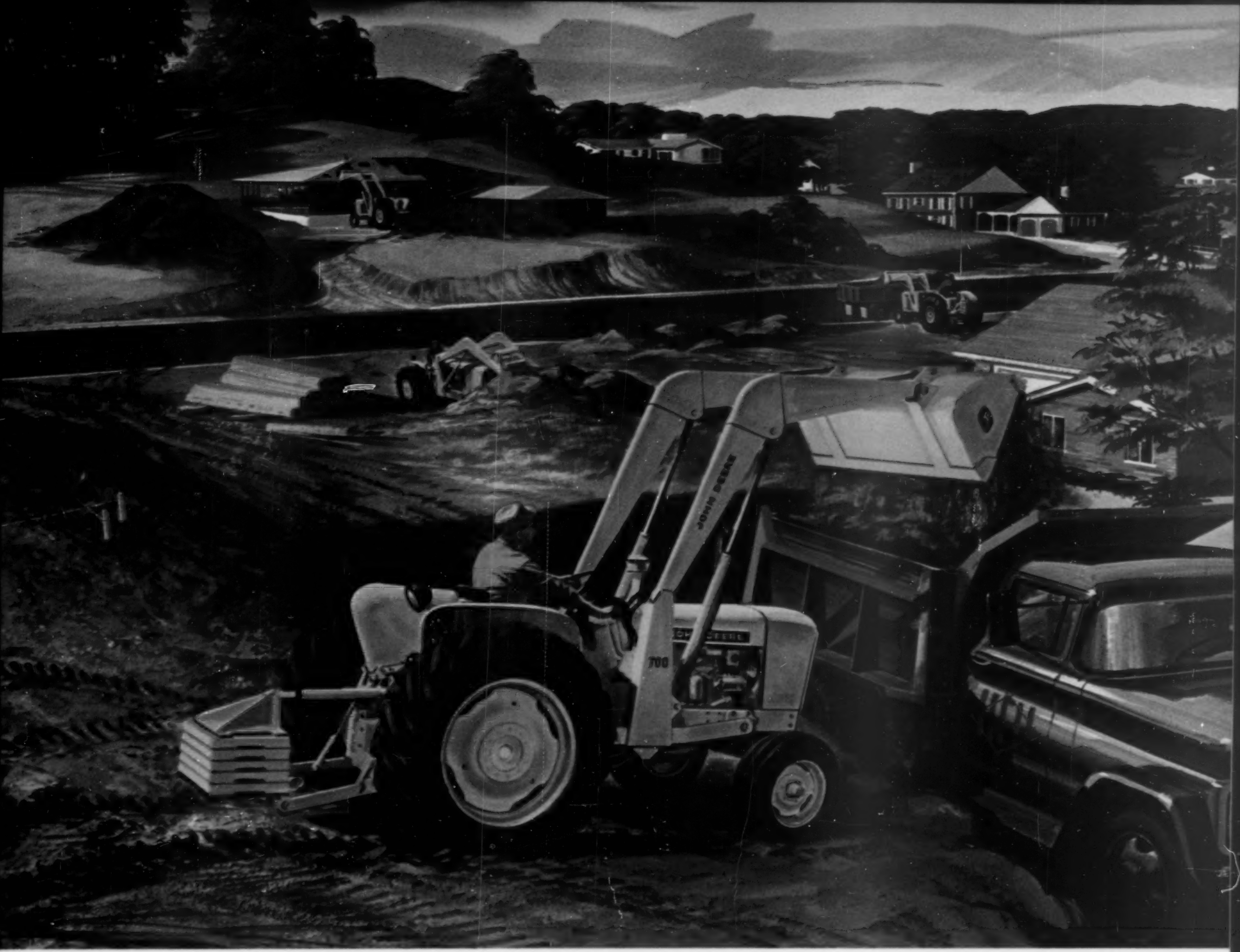


# Choose from 2 new Crawler Loaders or

***For any application*** *. . . Excavating, loading, material handling—name your job, and you'll find the right unit for it in the all-new John Deere loader line. You'll gain new operator efficiency, too, with improvements such as one-lever boom and bucket control.*

*Powered right for high performance,* the John Deere Ten-Ten Crawler-Loader meets all modern demands for a versatile, efficient unit in the 40 engine h.p. class. Sixty-six inch bucket has a rollback of 40 degrees, 8500 pounds breakout force, a full-height lifting capacity of 3500 pounds, and a dumping clearance of 8 feet, 1 inch. The Ten-Ten Crawler-Loader has a 3/4-yard bucket with 8 nodular iron teeth and is available with gasoline or Diesel power.

*With extra capacity for top production,* the all-new Twenty-Ten Crawler-Loader combines the 50-h.p. John Deere gasoline engine with a one-yard bucket. Fast cycle time is assured by the 40-degree rollback of the 66-inch bucket, 8500 pounds breakout, 3500-pound full-height lifting capacity and a 7-foot, 11-inch dumping clearance. Eight nodular iron bucket teeth speed excavating work in rock, frozen ground or other difficult operating conditions.



# 4 Wheel Loaders for greater job profits

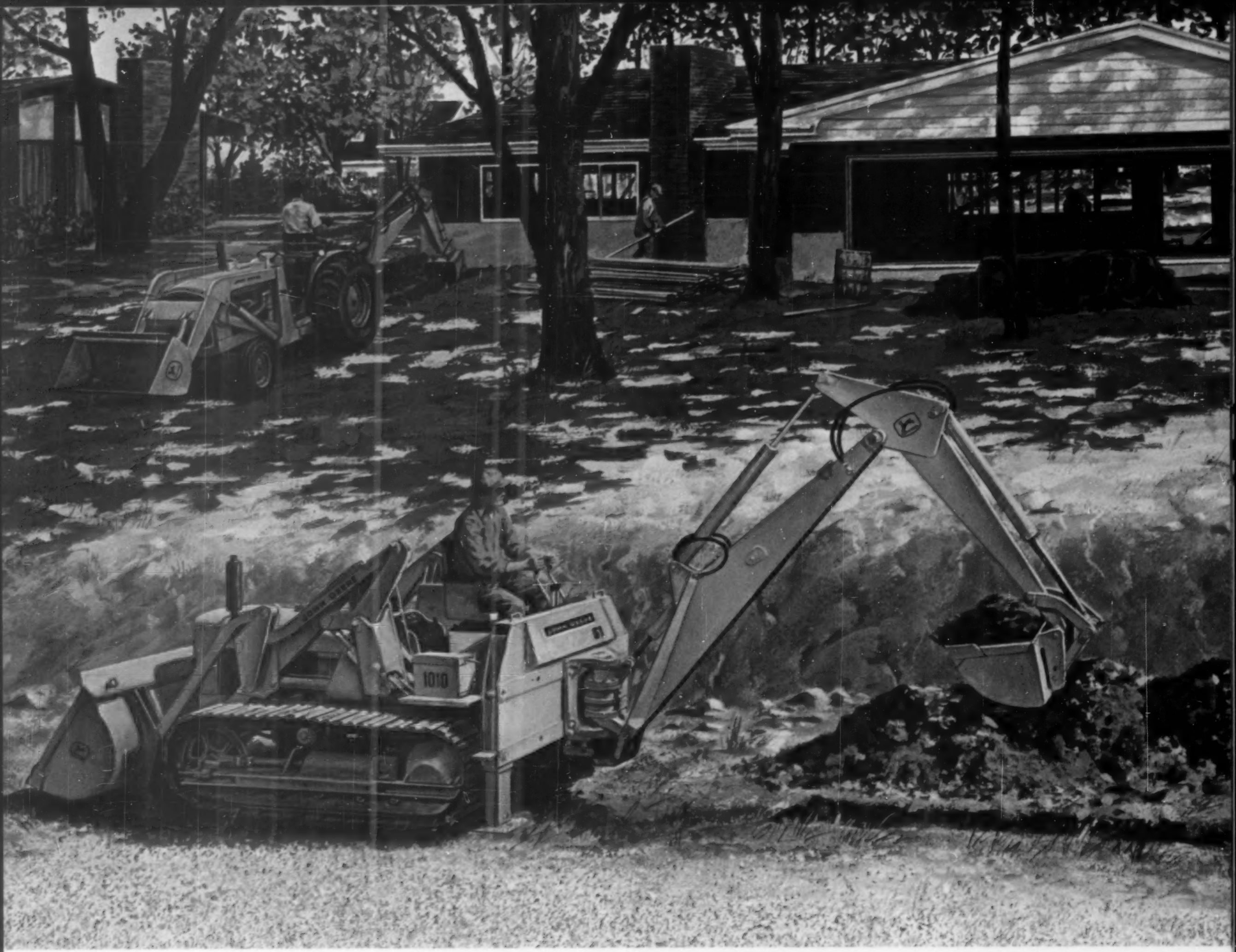
*A wide range of power matched bucket sizes, each with plenty of dumping height and pry-out power assures you the kind of loading performance you need. Whether your job calls for tracks or wheels, choose John Deere for new power and high productivity.*

*Valuable on any job,* the compact 701 Loader for John Deere Ten-Ten Wheel Tractors has a standard 3/8-yard bucket, four feet in width, with a 20-degree rollback providing 4800 pounds of breakout force, 2000 pounds full-height lift capacity, and a dump clearance of 102 inches.

*Low-cost loading* is yours with the economy priced 700 Loader which mounts on either Twenty-Ten or Thirty-Ten Wheel Tractors. Bucket size is 5/8 yard. Breakout force is 4800 pounds, full-height lift 2000 pounds and maximum dumping clearance, 102 inches.

*Single-lever control* on the 720 Loader for Twenty-Ten and Thirty-Ten Wheel Tractors speeds operation. The 720 Loader has 6650 pounds pryout pressure, 3500 pounds full-height lift effort, and clears 99-1/2 inches for dumping. Buckets are 5/8 and 7/8 yard.

*30-degree rollback* gives the 740 Loader for the Forty-Ten Wheel Tractor 6650 pounds of pry-out. Bucket capacity is 7/8 yard and lift effort, 3500 pounds at full height. Dump clearance is 99-1/2 inches. The loader frame is designed to accommodate rear-mounted backhoes.

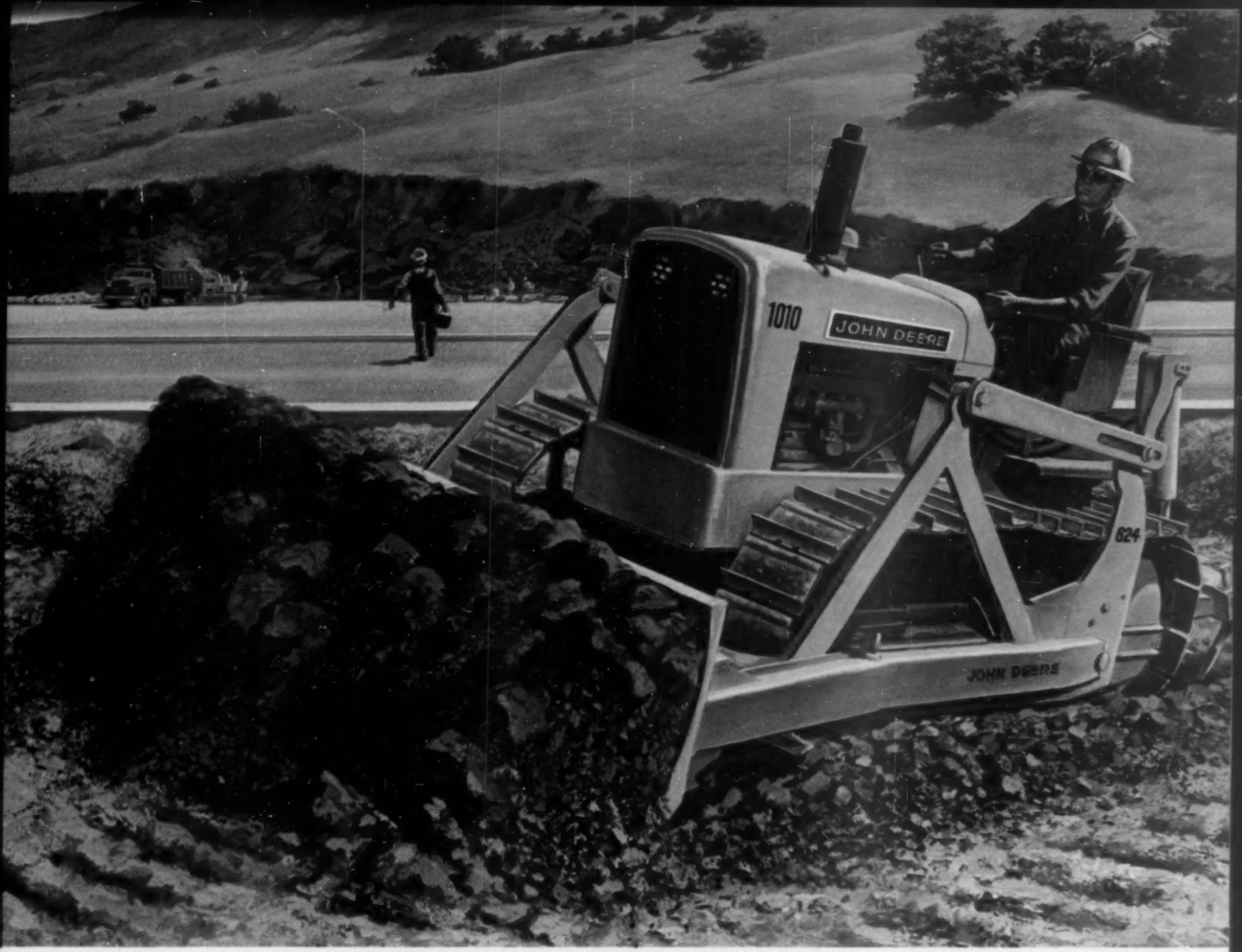


# Increase trenching versatility with a John Deere 50 or 51 Backhoe

*Team the new power, handling ease and mobility of John Deere Tractors with the field-proved performance of either the 50 or 51 Backhoe! You'll take advantage of every benefit of John Deere's new advances in engine power and hydraulics, plus the greater trenching versatility these units provide. Ease of operation and quick adaptability to working conditions are your assurances of low-cost trenching for soil pipe, foundations and cable laying.*

*2-Lever Control.* Efficient 2-lever control of boom, dipper stick, and bucket, a widely preferred feature on John Deere Backhoes during the past two years, is yours again with any backhoe combination in the line. Eliminates excess hand motion throughout a long working day; helps operator do fast, precision work.

*5-Position Digging.* The John Deere 51 Backhoe digs flush right or left against walls, fences or buildings. The rotary boom cylinder centers or slides to any of four off-center positions along the mounting, moved by the unit's own hydraulic power. One man with a wrench easily makes the switch in minutes right on the job.



# Take your pick from 5 all-job crawler bulldozers

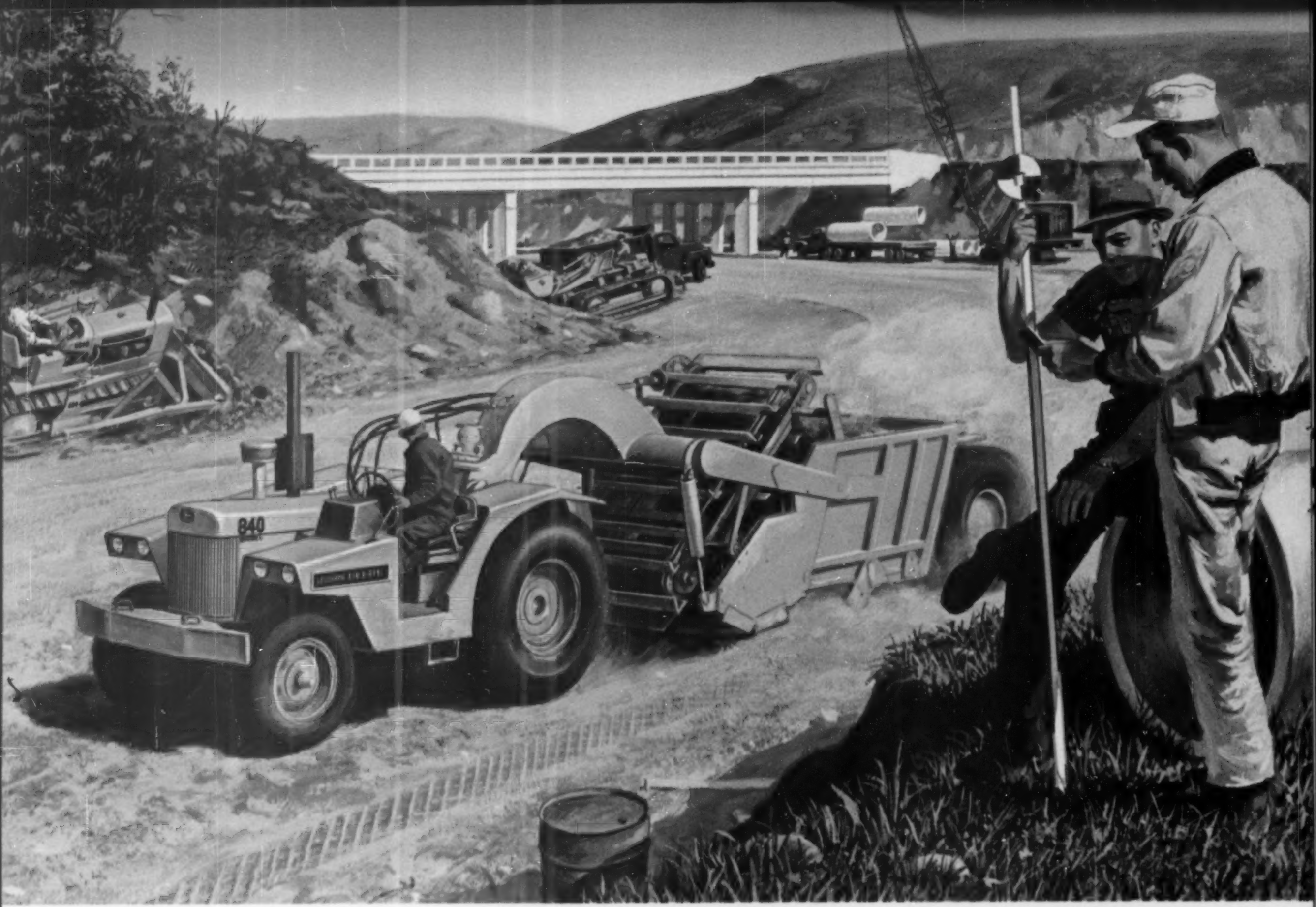
*Need a blade for heavy pioneering, road building, or precision finish grading? John Deere has it! Five outside- or inside-mounted dozers, sized right and power matched for your needs, are included in the new line. All-hydraulic models with power tilt, angle, and cut are now operated by new single T-bar control. Operator moves control to the position he wants and the blade repeats the motion! Just one of many new ideas throughout the whole line!*

*For clean work at low cost,* select the John Deere Ten-Ten Crawler with 610 inside-mounted Dozer. Available with 72-inch or 90-inch blade with three-piece cutting edges. Angles 18 and 25 degrees right or left, cuts to 12 inches below track level, and lifts as high as 40 inches.

*Power plus flexibility is yours* with the John Deere Ten-Ten Crawler and all-hydraulic 612 Dozer. Change tilt, angle or cut on the go with one control! Inside mounted, with 80-inch blade.

*For big work savings,* the 624 outside-mounted Dozer mounts on either the Ten-Ten or Twenty-Ten Crawler. Blade is 90 inches wide, 23 inches high with three piece cutting edge. Cuts as deep as 12 inches below track level, and is easily set to angle 25 degrees right or left. Lift is 48 inches.

*Pair the extra power* of the Twenty-Ten Crawler with new inside-mounted 620 or 622 Dozer. Choose from 72-, 80- or 90-inch blades with hydraulic lift or full hydraulic operation.



Dependable John Deere diesel power, teamed with a versatile elevating scraper, provides a widely preferred earthmoving combination for road and street work, land forming, and stripping overburden.

## PARTS and SERVICE

Parts and service for any John Deere Tractor are always available from your nearby John Deere dealer. He and his service crew know how to service and maintain construction equipment with minimum downtime expense. Find out how this man can help you now. Check with the classified telephone directory or write John Deere, 3300 River Drive, Moline, Illinois.

## JOHN DEERE CREDIT PLAN

All tractors and equipment can be purchased on terms of the John Deere Credit Plan. Arrangements are made in strict confidence by your dealer. Terms are tailored to individual requirements. Protective life insurance and property insurance are also available at low cost.

## LEASING PLAN

Throughout the United States, three to five-year leasing arrangements can be made through your John Deere dealer. The plan is specifically designed to enable contractors and others to obtain profitable use of the most modern, efficient equipment, without affecting needed working capital.

LITHO IN USA

**JOHN DEERE** Earthmoving Logging Landscaping
and Material Handling Equipment

JOHN DEERE

## Ions Purify Bid Openings

The business of bid awards to manufacturers and contractors was generally an uncomfortable procedure in Milwaukee City Hall's smoke-laden Central Board of Purchases' meeting room. Fifty cigarette, cigar and pipe smokers, shoulder-to-shoulder for two or three hours, could be wrong. The city felt that the solution was undetectable negative ions or electrically charged atoms which purify the air through oxidation of air-borne impurities. The negative ions are produced by units which draw air through an ultra-violet field created by a charge between plastic plates. Vita-Aire Process Co., Milwaukee, manufactures the air-purifying equipment.

While the smoky meeting room best demonstrates the purifier, its negative ions were first put to work by the City of Milwaukee as a health measure. Ten years ago the city accepted a unit on trial as a means of helping trim employee sick leaves. Latest checks on employee absenteeism show significantly lower sick-leave costs in the purchasing department where Vita-Aire negative ions are at work. As a matter of record, hours lost through sick leave in this department are 31% below the City Hall average.

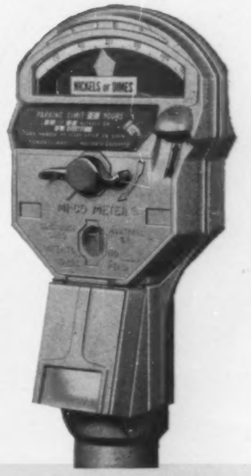
Negative ions were also used in the city's central reproduction department where duplicating equipment operates, as well as the city's photography dark-room. The strong odor from photographic chemicals and printing inks has disappeared.

The units run continuously day and night at Milwaukee's City Hall. Except for cleaning every six months, there is no maintenance.

One forgets about equipment that operates without a hitch day and night for ten years, but recently a reporter remarked that his sinus trouble seemed relieved when he visited the meeting room of the Central Board of Purchases. ◄◄

## The Dalles Wants No Fires

The Dalles, Ore., population 4,793, has installed 34 new fire alarm boxes downtown. Strategically located, they give property owners 24-hour protection. Several of the town's merchants have connected their automatic alarm systems to master fire alarm boxes, thus providing direct notification to fire department headquarters. ◄◄



**TRAFFIC MOVES**
*and*
**INCOME GROWS**
*with*
**MI-CO**
**PARKING METERS**

MI-CO Meters chase parking hogs, bring more people into stores, give city coffers a transfusion. They pay for themselves in a hurry, one reason being that correct engineering and structural ruggedness practically eliminate down-time and consequent loss of revenue. MI-COs have only six moving parts, stay on the job in all kinds of weather. They now serve more than 500 cities here and abroad, some with original installations 15 years old. Adjustable to any number of hours, and 1¢ to 25¢. Before you decide on original or replacement meters for curb or off-street parking, get the whole story of MI-CO advantages . . . including the exclusive tamperproof coin collection system.

*A Symbol of High Quality*

**MI-CO PARKING METERS, P. O. BOX 668-A, COVINGTON, KENTUCKY**
*(The Michaels Art Bronze Co., General Offices and Plant, Erlanger, Kentucky)*
OTHER MICHAELS PRODUCTS: Architectural Metal • Curtain Walls
Display Cases • Reversible Windows • Tablets • Memorials • Signs

KEEP YOUR SEWER LINES CLEAN AND FREE FLOWING THE YEAR 'ROUND

with

**Sanfax 222**

Sanfax 222 is a scientifically developed, power packed chemical that burns out tree roots, trash and impediments in record time.

A one man operation . . . pour Sanfax 222 into the manhole and upon contact with water this powerful chemical activates immediately.

Prevent deposit build-up and avoid troublesome sewer clogging by regular application of Sanfax 222.

Thousands of satisfied users from coast-to-coast.

**Increases sewer line efficiency**

**Slashes maintenance costs and reduces labor time**

**Cuts costly sewer repairs to a bare minimum**

**Minimizes line flooding**

**WRITE**
**WIRE**
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SANFAX
Corporation ®
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ATLANTA, GEORGIA

ATLANTA
CHICAGO
SAN FRANCISCO
TORONTO, CANADA

*The best in Specialized Chemicals . . . through extensive research and quality control.*

## How Master Planning Has Aided A Small City

Franklin Township, N. J., jotted down the advantages it has gained from the work of its planning board last year. At the top of the list was the adoption of the Township Master Plan, carried to completion by Community Planning Associates of West Trenton.

The Master Plan places the entire township under orderly control so that development will attract the most desirable economic activities to the area, protect the rights of existing residents, assure high standards for new subdivisions, provide needed public facilities.

It gives the Planning Board and Zoning Board of Adjustment a firm basis on which they can make decisions. It suggests location of future sewers, water, street and other public services.

The Board's zoning committee is currently working on a street-renaming project to eliminate confusion in the present naming system, and place the streets on an overall township basis. ◄◄

## City Zoning Map Mistaken for Modern Abstract Art

When West Palm Beach, Fla., was negotiating for a traveling display of paintings the Director complimented the city on its painting in abstract art. The "abstract painting" turned out to be the city's zoning map.

Nevertheless, the city's decision to take advantage of the Palm Beach Art League Travelling Collection of pictures and display them in City Hall has been immensely popular. The city entered into an agreement with the Palm Beach Art League and the Norton Gallery and School of Art for the loan of pictures for a ten-week period, with a new set of pictures at ten-week intervals.

The municipal building has now 26 pictures valued at approximately $12,500 which are displayed in all of the principal rooms.

The Tax Assessor had commented that his own particular preference was for a picture called "Custer's Last Stand."

This picture was donated to City Hall. It shows the historic and successful attack by the Indian Chief, Sitting Bull. The city assessor has requested that it be hung in his office. ◄◄

## Air Pollution Control Notes

### High Cost of Clean Air

**The American Petroleum Institute reported recently that since 1952 individual oil companies in this country have spent about $66,000,000 on air pollution control.**

### Major Sources of Pollution

**An official two-year study of air pollution in the El Paso, Tex., area, shows that major sources of pollution are motor vehicles, industrial plants, refuse and sewage disposal and such natural sources as pollen and dust. The study, made possible by a grant from the United States Public Health Service, also shows that radioactive fallout in El Paso is among the highest in the country.**

### Progress in Oregon

**At a recent meeting of the Air Pollution and Abatement League of Medford, Ore., Jack Foster, acting spokesman for the group, said that good progress is being made by the lumber and fruit industries in controlling air pollution. He added that the League is not seeking legislation for ordinances to control air pollution, but is relying instead on the voluntary cooperation of the industries.**

### Appointments in Chattanooga

**The City Commission of Chattanooga, Tenn., has named Sam Perry, Vice-President of the Chattanooga Box and Lumber Company, and John Allen Carter, Vice-President of Carter Brothers, Inc., as members of the Air Pollution Control Board of the city. Harry Miller is Chairman of the Board.**

### Varia

**Air pollution and its possible link to certain types of cancer have been in the news recently. United States Surgeon General Leroy E. Burney announced that a speedy method of measuring cancer-causing agents in city air has been devised. He said substances demonstrating cancer-producing activity have been identified and isolated from the atmosphere of certain cities. Extracts from these same atmospheres have produced tumors in experimental animals. . . . Dr. J. R. Heller, Director of the National Cancer Institute, said that excessive smoking was "one of the causes of lung cancer, but not the only one." He said he did not think there was any doubt that air pollution also played some role in causing lung cancer. . . . On the other hand, Dr. E. Cuyler Hammond, Director of the Statistical Research Section of the American Cancer Society, and Dr. Michael B. Shimkin, Chief of Biometrics and Epidemiology of the National Cancer Institute, pointed the finger at cigarette smoking and dismissed air pollution as an important factor in the rapid rise of lung cancer, although Dr. Hammond added: "There is sufficient evidence to justify an intensive research program to determine whether such a risk actually exists." . . . Experts of the United Nations World Health Organization also laid the major blame for lung cancer on cigarettes, but said that air pollution might be of "some importance," although "smaller than that of cigarette smoking." Air pollution, the experts said, could be a contributory factor to the higher incidence of the disease in urban areas than in rural ones, a phenomenon which was demonstrated in all countries where detailed studies have been made. The experts said there was a possibility that air pollution had some effect among smokers, because "atmospheric smoke might be retained more effectively in lungs already damaged by some inflammatory process."**

***—Prepared by Kenneth Kowald***

**It will be years** before this mile-long, double-decked highway and railroad bridge has to be repainted. Every coat of the maintenance paint now being applied contains *M50* pigment.

# Maine triple protects big Kennebec bridge with 3-deep, *M50*® "Defense-in-Depth" paint system

Did you know that you can now buy metal protective paints with anti-corrosion pigment in *all three coats* . . . primer, intermediate *and* finish?

Did you know that these "Defense-in-Depth" paints are so durable that primers alone . . . with no intermediate or finish coats to protect them . . . have endured *years of exposure?*

A relatively new pigment, *M50® basic lead silico chromate,* permitted development of these outstanding new-type metal protective paints.

**And how they've caught on!**

In October, 1956, Maine painted a small highway bridge in Minot's Corner with *M50* "Defense-in-Depth" paints. Small photos show you how that paint job looked in August, 1959.

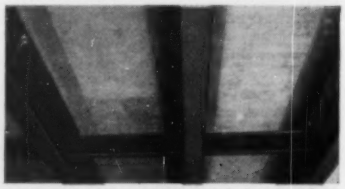
Now Maine is giving its mile-long double-decked, Kennebec Bridge in Bath the same *M50* pigment 3-deep protection. Old surface is brush blasted then given an *M50* spot prime and an *M50* intermediate coat where needed. Final step is the application of 2600 gallons of an *M50* green finish coat.

**As Maine goes...**

. . . so goes the nation. State after state is completing its early tests of *M50* "Defense-in-Depth" paints and has big *M50* bridge maintenance painting jobs under contract or advertised for bids . . . Georgia, Missouri, New York, South Carolina. And many more to follow suit.

Your regular paint suppliers can make *M50* "Defense-in-Depth" paints. Ask them. For technical details on *M50* pigment itself in metal protective paints, write National Lead Company.

**Above decks . . .**



**Below decks . . .** First Maine bridge to be painted with *M50* "Defense-in-Depth" paints remains free of film defects. Bridge, at Minot's Corner, was painted 34 months before pictures were taken.

**M50** *an* **oncor**® TRADEMARK *Pigment . . . A Development of*

**National Lead Company**

**General Offices: 111 Broadway, New York 6, N. Y.**

## WATER SUPPLY AND TREATMENT

# Florida Recognizes Best Operated Plants

*Here David B. Lee, director of the Bureau of Sanitary Engineering of the State Board of Health (right) congratulates six of the winners. They are (left to right): Karl Casseur, North Palm Beach; Williard F. Johnstone, Riviera Beach; George Furman, Cocoa; Joe Woolfe, Lake Worth; C. S. McKinney, Ft. Lauderdale; and E. C. Burwell, Tampa.*

A big event at the annual Florida Water and Sewage Works Operators Association Short School is the announcement of the best-operated plants for the year. This year the Florida State Board of Health cited eight plants as follows: Atlantic Beach—primary treatment plant serving under 10,000 population; Cocoa—primary treatment plant serving between 10,000 and 25,000 population; Pinellas County—primary treatment plant, more than 25,000 population; North Palm Beach—lime softening plant serving under 10,000 population; Riviera Beach—lime softening plant serving 10,000 to 25,000 population; Fort Lauderdale—lime softening plant serving more than 25,000 population; Lake Worth—coagulation and filtration plant, 10,000 to 25,000 population; and Tampa—coagulation and filtration plant, over 25,000 population. ◄◄

# Chemical Handling Costs Cut 22%

Through the installation of air conveying, Brandon, Manitoba, Canada, eliminated bag handling, reduced storage costs, and cut chemical costs 22%. The air conveyor allows the city to buy chemicals in bulk for its water treatment plant.

The plant's Dracco Airstream Conveyor System performs two functions: moving lime and soda ash from railroad cars to storage, and transferring these chemicals from storage to feeders. Two conveyors, one for soda ash and the other for lime, do the work. They are interchangeable from a maintenance standpoint and can be operated in tandem for fast unloading of either chemical.

The two systems are identical. When unloading a railroad car, the chemical can be moved to any of three destinations—either of two 60-ton-capacity storage silos or directly to the feeders. The system also moves the chemicals from the silos to the feeders.

During unloading, the operator attaches flexible lines to any of six conveyor lines manually at a switching station. Movement of material from storage to feeders however, is automatic. Chemicals are drawn from a preselected silo to the receiver and are then transferred from the receiver to the feeder hopper under pressure. Rotary feeders on the silo hoppers determine the rate of flow.

Both conveyors have dust return lines running to collectors which filter dust, keep it out of the air, and return it to the receivers. Thus, there is no waste in the handling process. The system provides further economies by eliminating loss of chemicals due to bag breakage. Only one employee is needed to monitor the operation. ◄◄

## Gas Will Take Over If Electricity Fails

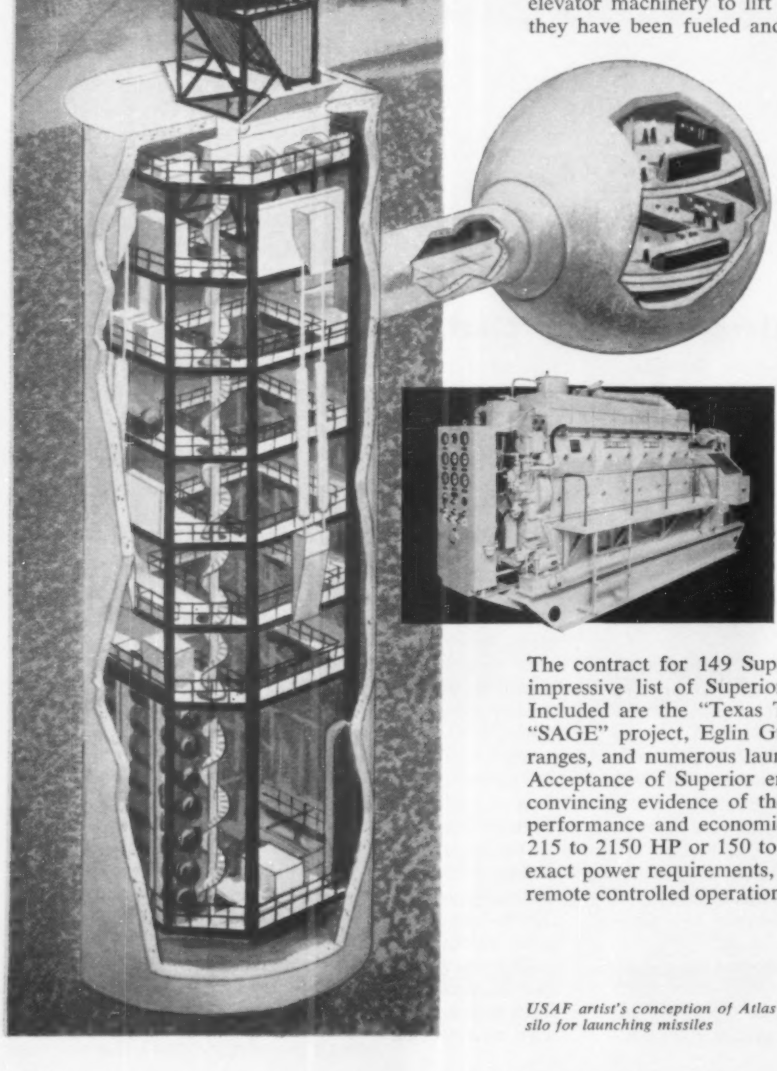
Hurricane Hazel started the Cortland, N. Y., Water Board and its superintendent, Daniel J. Houlihan, thinking in terms of natural gas for emergency power. Now, if electric power should fail, natural gas will take over through the use of a 300-hp engine, to supply water up to 6.6 mgd.

Last summer the Cortland Water Department completed a new 80-foot-deep well and installed what is probably the only spark-ignition diesel engine along the eastern seaboard running on natural gas. It is a four-cylinder Fairbanks, Morse unit connected to an 18-inch deep-well turbine pump. The engine is started by compressed air from a tank with a reserve of seven starts. If more are needed, a portable compressor can be used. Department employees constructed the 24x60-foot concrete-block building housing the engine, pump and controls.

This new installation increases overall daily capacity to 12,000,000 gallons, ample for almost any emergency. Present water usage ranges from 2.8 mgd to 3.8 mgd. ◄◄

# WHITE SUPERIOR ENGINES selected for ATLAS launching sites!

At USAF Atlas launching sites throughout the United States, prime and standby power will be supplied by White Superior engines! The Army Corps of Engineers, Kansas City, Missouri, has purchased 149 eight-cylinder supercharged Model 40 Superiors, each driving a 500 KW generator. These engine-generator sets will produce precise frequency for operation of computers and other electronic equipment. Six of the 13 planned Atlas ICBM squadrons will feature underground silo-type launching sites. Here an additional task for the Superiors will be powering elevator machinery to lift the 120-ton ICBM's to ground level, after they have been fueled and checked out down under.



**White Diesel**

Superior Engines

ATLAS Imperial Diesel Engines

White Diesel

**WHITE DIESEL ENGINE DIVISION**
THE WHITE MOTOR COMPANY
*Plant and General Offices: Springfield, Ohio*

The contract for 149 Superiors highlights a growing and impressive list of Superior-powered U.S. defense installations. Included are the "Texas Towers," portions of "DEW" line and "SAGE" project, Eglin Gulf Test Range and other missile tracking ranges, and numerous launching sites for other types of missiles. Acceptance of Superior engines for these assignments is convincing evidence of their rugged dependability, trouble-free performance and economical fuel consumption. Superior engines—215 to 2150 HP or 150 to 1500 KW—will also meet your exact power requirements, including automatic, unattended or remote controlled operation. Write for complete information today!

*USAF artist's conception of Atlas underground silo for launching missiles*

→

*With his new front-end loader, operator Ford Crispin can handle all phases of the landfill operation. In addition he can take care of roads, clear land and load township trucks with cinders and fill dirt.*

## One Machine—Many Jobs

The New Jersey state law requiring daily coverage of refuse disposed of by the landfill method with eight inches of earth meant many a change throughout the state. Lower Penns-Neck Township was one area so affected. To comply with the law, we faced the choice of either renting equipment on a daily basis or purchasing a machine capable of handling the job.

From experience, we knew renting was out of the question economically. Our landfill operation takes care of about 70 cubic yards of material per week and formerly we used a small tractor with a 65-inch dozer blade to push the refuse to the fill site and clear land in the area. Once each month we rented a rubber-tired front-end loader to help clear up the backlog (the dozer gradually fell behind in the work) and cover the material with earth. One-day rental, with operator, cost us $80. To pay that much every day was simply beyond our means.

After looking over various pieces of equipment we decided on an Oliver OC-96 tractor with a one-yard bucket. It costs us only $13.90 per eight-hour day (five gallons of fuel at 14 cents per gallon and wages at $1.65 per hour) to operate the machine. The balance of the amount it would cost us to rent a unit will soon pay for the new machine as well as take care of maintenance.

With this unit we not only handle all duties at the landfill with ease, but also use it to "beef-up" the muddy truck lanes with about 30 yards of waste coal each week, clear about an acre of ground in a day, and load township trucks with cinders and backfill material. This machine will also play an important part in snow removal work and we have mounted headlights on it for that purpose.

Operator Ford Crispin is particularly happy about the machine's hydraulic controls and Trans-O-Matic transmission which permits shifting from forward to reverse while on the move. He can operate the unit for eight hours without effort or strain.

The Oliver OC-96 more than handles the landfill job and we will find many other jobs for it, making it an all-around machine for the township.

JOEL JENKINS
*Road Superintendent*
*Lower Penns-Neck Township, N. J.*

## How Council Bluffs Finances Refuse Sanitation

Refuse collection and disposal is a self-supporting municipal service in Council Bluffs, Iowa. The sanitation budget totals $146,000, derived from a service fee, charged to each property owner, of $1 per month. This provides one pickup each week throughout the year. In the business district, the crews pick up daily, making a charge of 21 cents a minute at each collection stop. This figure is the result of a time study conducted by City Manager Paul L. White.

The city uses seven trucks of 16-yard capacity. Four are Leach Packmasters and three, Gar Woods. The trucks are arranged so that each will serve for seven years, thus requiring the city to budget for one new truck each year.

The refuse goes to the city's sanitary fill where a Caterpillar tractor with a Drott Bullclam does the digging, compacting the refuse and covering. A second disposal area receives only tree limbs, iron junk and similar material. ◂◂

*The city's crawler tractor and Bullclam compact the refuse before covering it.*

*"He musta misunderstood Gran'maw. She told him Tyton is easy to handle!"*

**U.S. cast iron PIPE** FOR WATER, SEWERAGE AND

# TYTON®

## ONLY FOUR SIMPLE ACTIONS

# losing no time!

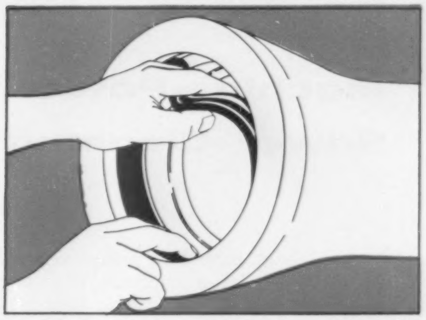
Not Cousin Willie. He's used to working with Tyton® fastest, simplest, easiest to install pipe that ever snuggled into a trench.

No bell holes, caulking equipment, nuts, bolts or other bothersome equipment. Tyton Joint® pipe needs only one accessory. No weather worries, either. Tyton can be laid in rain or wet trench if need be.

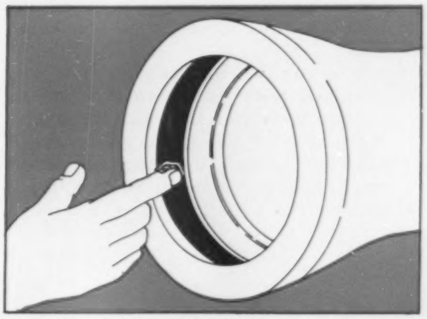
Lose no time. Get the time and money-saving facts on Tyton Joint pipe. Call or write.

**U.S. PIPE AND FOUNDRY COMPANY**
General Office: Birmingham 2, Alabama

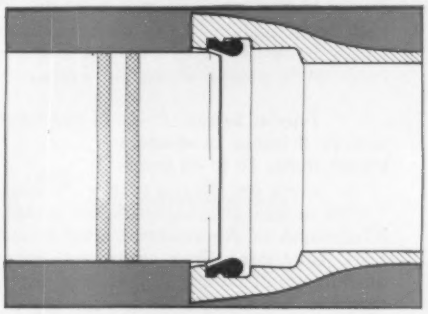
A Wholly Integrated Producer from Mines
and Blast Furnaces to Finished Pipe.



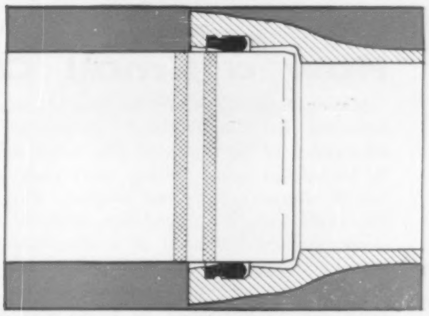
Insert gasket with groove over bead in gasket seat . . . a simple hand operation.



Wipe film of Tyton Joint® lubricant over inside of gasket. Your receiving pipe is ready.



Insert plain end of entering pipe until it touches gasket. Note two painted stripes on end.



Push entering pipe until the first painted stripe disappears and the second stripe is approximately flush with bell face. The joint is sealed . . . bottle-tight, permanently! The job's done . . . . fast, efficiently, economically. Could anything be simpler?

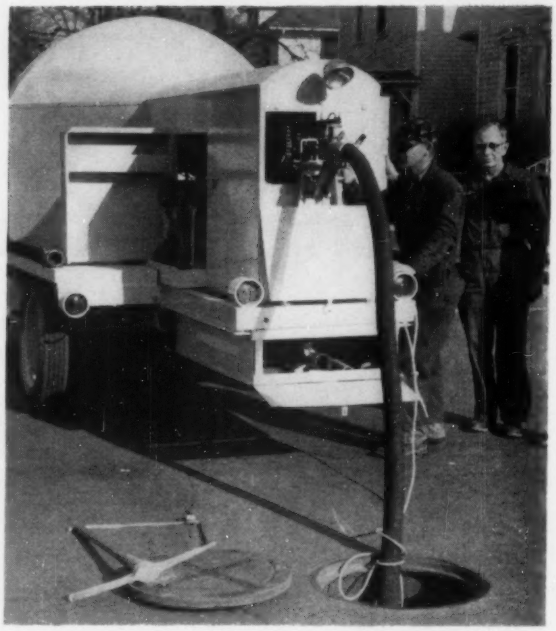
INDUSTRIAL SERVICE CAST IRON®

# Machine-Power Sewer Cleaning

More work with less manpower best sums up the result of our latest purchase of equipment—a truck-mounted Flexible Automatic SeweRodeR. No longer is it necessary for street workers to climb down the manholes and send push rods through by hand, an unpleasant job under the best of conditions. With the new unit, all operations are conducted from the street level.

Whereas, we formerly used a crew of three men equipped with small portable power units, we now operate with two men and accomplish the work with much greater speed and efficiency. If necessary, one man can operate the machine without difficulty, but since power equipment is involved and the work is done in the street, a two-man crew is advisable.

HOMER E. ANDERSON, *Director*
*Public Service and Safety*
*Troy, Ohio*



***Street Department Superintendent Art Anderson looks on as maintenance man Charles Crawford operates Troy's new truck-mounted sewer-cleaning machine.***

# People Served Per Mile of Sewer

In a suburban area, with predominantly single-family homes lying in a rolling terrain, sanitary sewer requirements may expect to average:

| Type of Sewer | Per 1,000 Persons Served |
|---|---|
| Lateral, 8 inches in diameter | 4 miles |
| Branch trunk, 10 to 48 inches | 1 mile |

This represents the results of a study by Morris H. Klegerman of Alexander Potter and Associates, New York City consulting engineers, covering sewer requirements of portions of Fairfax and Loudoun Counties, Va. The study analyzes the use of existing sewers in order to anticipate needs of unsewered portions.

The existing sewer system in this area is able to be financially self-supporting through an annual service charge of $39 per household, and a connection or "availability" charge of $100. Of its nearly 600 miles of sewers, 80% are laterals from branch trunk lines, serving individual streets; all are 8 inches in diameter and provide sewerage service to 260 people per mile of line. The remainder are branch trunk sewers, varying from 10 to 48 inches in diameter, and serve 1010 people per mile.

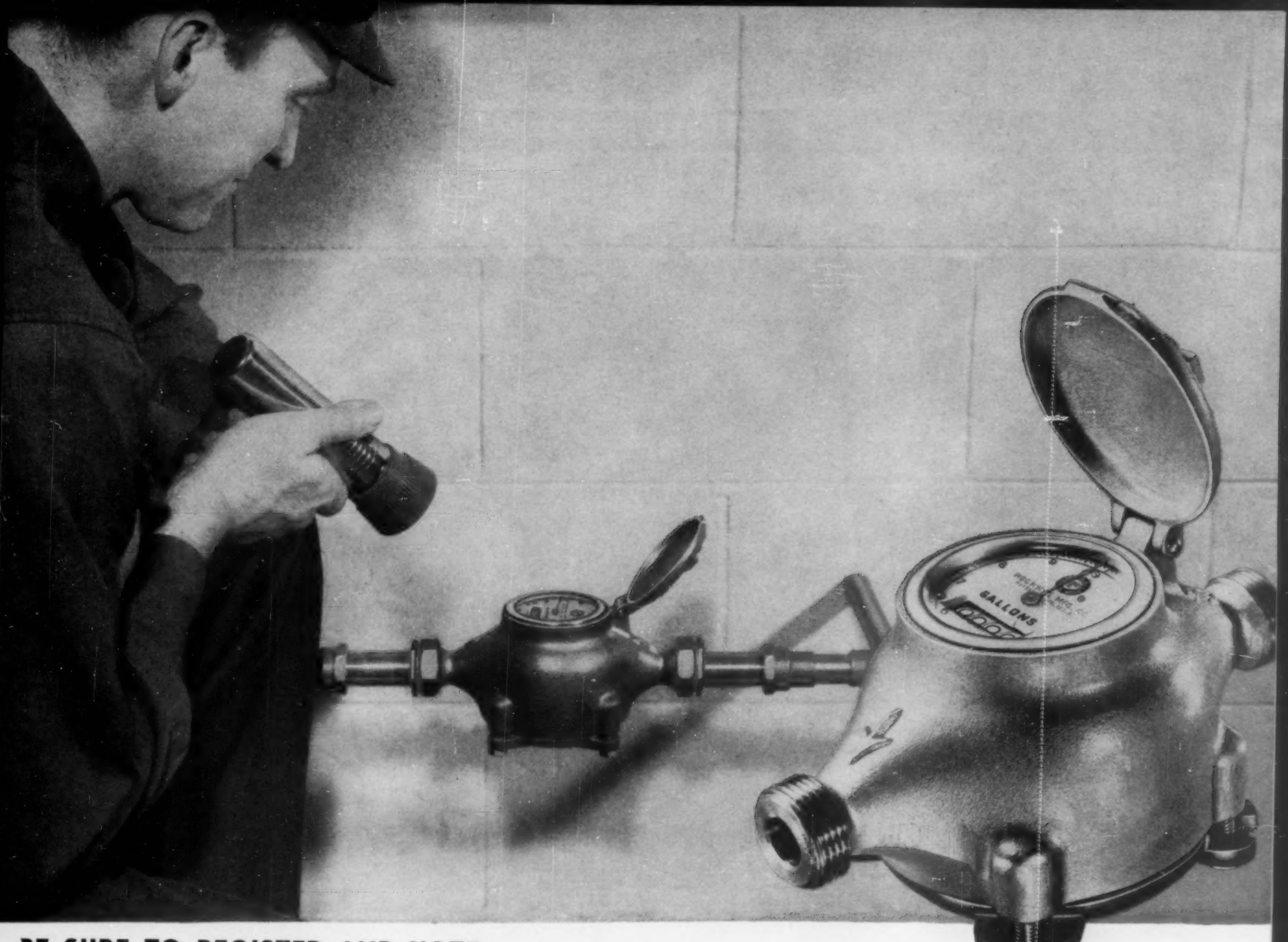
The figures are derived from current population and do not represent "saturation densities." They do, however, indicate that the cost of constructing and operating the system, designed for a much larger future population, is comfortably self-supporting at the rates noted, using revenue-bond financing. ◄◄

# How a Small City Convinced Its Public

Mayor Ralph Dickert of Brundidge, Ala., recently reported in the *Alabama Municipal Journal* that education of the public has paid off in his town. It convinced local voters that they couldn't afford not to support a sewer project. The pay-off was a 260-to-95 vote by Brundidge citizens to assess themselves for construction of a complete sanitary sewer system. The $450,000 price-tag (a whopping one for a small town) will increase the minimum monthly water rate from $1.75 to $2.50, add a sewer charge equivalent to 50% of the water bill and impose a $15 tapping fee for connection to the municipal sewer system.

The city will finance the project by sale of $375,000 in 30-year revenue bonds, making up the balance with a $75,000 federal grant which was approved in February.

The success of the March 1st referendum is credited to a carefully planned, 24-month-long public-information campaign during which every Brundidge voter was bombarded with facts demonstrating his personal need for improved sewage facilities. After retaining an engineering firm to conduct a preliminary survey and fiscal agents to figure amortization costs on a per-customer basis, the Brundidge Inter-Planning Council launched the public-information campaign. The council consisted of two members from each local civic organization. ◄◄



**BE SURE TO REGISTER AND VOTE**

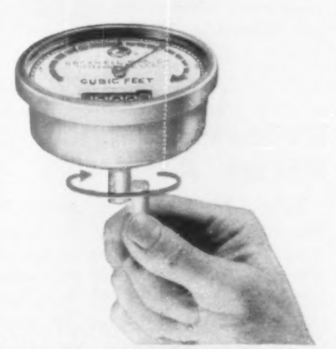
# Why this "magnetic" meter is always easy to read

In Rockwell Sealed Register meters a powerful magnetic coupling transmits every motion of the measuring chamber directly to a hermetically sealed register.

This construction permits the sealed register to be positioned high and dry above the flowing stream. Condensation and dirt, the bane of the meter reader, just can't occur. In fact, this meter will run under water without harm.

The sealed register assembly contains all the gearing both for register operation and for intermediate reduction. Gears and pinions are of the free running instrument type. They offer only token resistance to the measuring element and so improve the accuracy and response of the meter especially at low flows.

All this, plus a simplified design in which only two parts operate in water means less wear, less chance for corrosive attack and of course easier maintenance at lower cost. Get facts now. Write to Rockwell Manufacturing Company, Pittsburgh 8, Pa.



**POWERFUL MAGNETIC DRIVE**

Illustrating how the driver magnet (held in hand) revolves around a watertight compartment at base of register to push the follower magnet, which in turn drives the register shaft.

**SEALED REGISTER METERS**

another fine product by

**ROCKWELL**

## In San Francisco

*Shown with twelve of the latest American LaFrance 1,000-gpm pumping engines and a 100-foot aerial ladder truck are (left to right) D. G. O'Neill, district manager, American LaFrance, Fire Chief William Murray, Assistant Chief Lindecker, and Lieutenant Don McMillan of the City and County of San Francisco.*

## VHF, Microwave CD Network for Dade County

Dade County, Fla., will use microwave and VHF communications equipment in a Civil Defense disaster communications network.

A quarter-million-dollar contract covers four 250-watt base stations in the 450-mc band, two 60-watt base stations, and 160 mobile units, including 40 motorcycle "Dispatcher" radiophones.

The base station system is diamond shaped with units located at the east, west, north and south boundaries of the county. The dispatcher center is in the eastern point, the Dade County Courthouse. A 6,000-mc microwave loop system, providing independent control of any base station, will connect the four points of the diamond-shaped base station system. Civil Defense headquarters will be at the western point of the diamond and will include an auxiliary dispatcher station for emergencies.

A Motorola "Quik-Call" selective signaling system provides individual contact with patrol cars. This feature also automatically turns on the flashing red light on top of the patrol car to summon the officer if he is out of his vehicle. ◄◄

### New Fire Alarm

The City of Louisville, Ky., will modernize its fire alarm network, according to City Buyer William F. Johnson, by a new fire-alarm central-office system. The contract was awarded to Fyr-Fyter, Newark, N. J., for $65,986. Still to be bought is a generator for the system, expected to cost $3,000. Mr. Johnson said Louisville will be the largest city to date to install a Fyr-Fyter fire-alarm central-office system. Mr. Johnson, Fire Chief John Krusenklaus, and Captain Charles Vollmer, chief of the fire-alarm division traveled to Alexandria, Va., to inspect the Safa installation there. ◄◄

## Friendship's First Aid

Friendship Hook and Ladder Fire Co. of Boyertown, Pa., has an emergency truck consisting of a Boyertown body on a Dodge Chassis. The truck carries 400 feet of 2½-inch and 400 feet of 1½-inch hose, two ten-foot sections of 2½-inch suction hose used with the Gorman-Rupp portable water pump; 2,500-watt Onan motor generator for 110 and 220-volt circuits, which supplies five portable searchlights of 500 watts each.

With a two-way radio the truck can talk with the fire hall and 13 fire companies in the area. ◄◄

FRIENDSHIP

**ELECTRO-MATIC®... "the first name in Traffic Control"**

# Thirty-Three Years of Leadership

TRAFFIC
SIGNAL
CONTROLS
ACTUATED

## *First to perceive the need.... first to conceive the way*

In 1927 Automatic Signal developed the *first* traffic-actuated signal. Since that day, creative thinking, imaginative engineering and manufacturing skill have built a reputation for foresight and achievement. Automatic Signal will continue to serve the future by seeking new needs, by developing new ways of helping tomorrow's traffic move . . . adding to its long list of such firsts as:

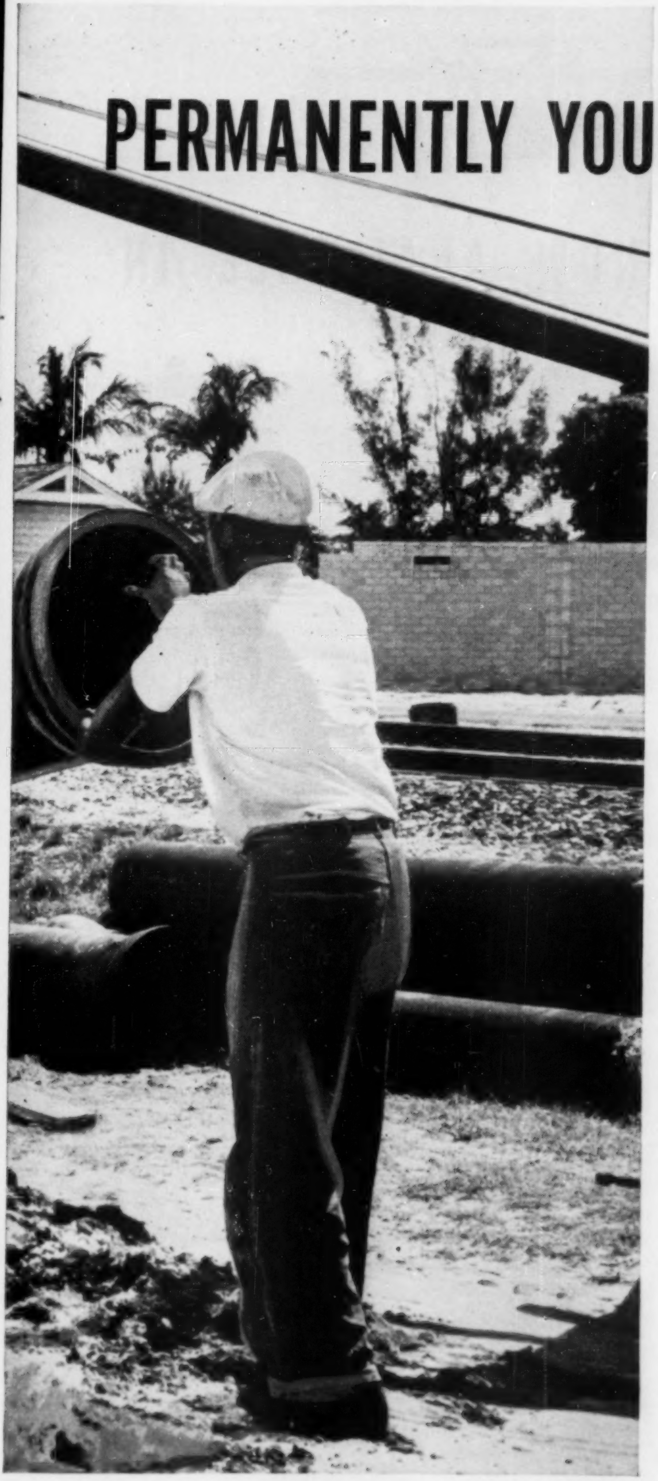
- Pressure Detector
- Semi-Actuated Controller
- Full-Actuated Controller
- Multi-Phase Controller
- Magnetic Detector
- Volume-Density Controller
- Pedestrian Controller
- Pedestrian Pushbutton
- Cycle Selector
- Speed Controller
- Advance Green Timer
- Lagging Green Timer
- Pedestrian Interval Timer
- Volume Computer
- PR System
- Radar Detector
- Minor Movement Controller
- Radar Speed Meter
- Railroad Radar
- Speed Computer
- Traffic Monitor
- Density Computer
- All-Red Clearance Timer
- Phase Overlap Unit
- Plug-In Controllers and Accessories

ELECTRO-MATIC CONTROL

**AUTOMATIC SIGNAL DIVISION** EASTERN INDUSTRIES, INC.
NORWALK, CONNECTICUT

**THE MARK OF THE 100-YEAR PIPE**

# PERMANENTLY YOURS: CAST IRON PIPE



## *Installed... it stays installed*

One thing sure about cast iron pipe—once it's in the ground, it's there for keeps! Over 100 American utilities, having used cast iron pipe steadily for more than a century, can testify to that. And *modern* cast iron pipe gives you greater assurance than ever: great beam strength resists heavy surface traffic; tremendous load resistance absorbs even the most forceful pressures. In fact, when you select cast iron pipe, you can anticipate no major repairs in your water supply system for the next hundred years!

### Cement-lined—it stays cement-lined

A smooth coat of cement lining along the inner wall helps prevent the formation of flow-reducing particles. No matter how strong the water is, cast iron pipe always assures a free, steady flow.

### Joined—it stays joined

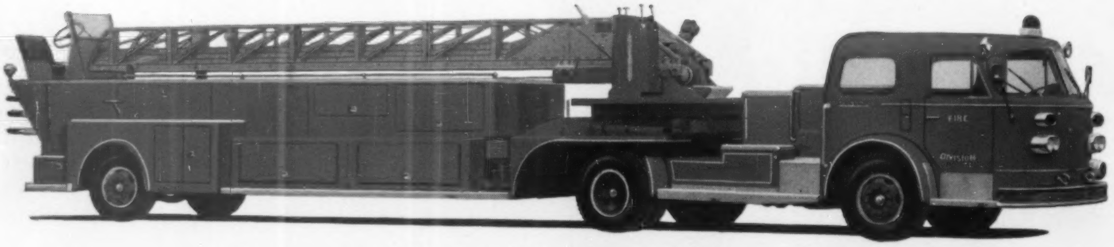
Bottle-tight, rubber-ring joints give you leak-proof protection at the most vulnerable points of your system. Vibrations, surface traffic and washouts present no problem to cast iron pipe. Inherent ruggedness . . . built to perform under all adverse underground conditions . . . repair-free service for at least a century—all good reasons why your choice should be that of water utility experts everywhere. America's greatest water carrier: cast iron pipe.

Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 3440 Prudential Plaza, Chicago 1, Illinois

**CAST IRON PIPE**

AMERICAN LAFRANCE

# TURBINE ENGINES NOW AVAILABLE IN



Turbine powered Seattle Aerial truck
with 100 ft. All-Steel Ladder

## For Smoother Performance,

Fire Chief William Fitzgerald and officials of the City of Seattle, Wash. have the honor of ordering the world's first production turbine engine powered automotive vehicle. This vehicle is a new American LaFrance aerial truck with 100 ft. all steel aerial ladder and will be powered by a Boeing 325 B.H.P. turbine engine.

Turbine engines for automotive use have been under development for approximately 15 years. Many installations have been made to proof test the designs before offering the turbine engine for automotive production.

The turbine engine offers many advantages over the piston type engine of comparable power. Some of these advantages are:

1. **Lightweight — approximately 10% of the piston engine installation.**
2. **Not sensitive to type of fuel used.**
3. **Better acceleration and hill climbing ability.**
4. **Elimination of engine cooling system.**
5. **Fast starting, no choking, full power in 10 seconds. No warm-up required at temperatures as low as 25° below zero.**
6. **Reduced maintenance due to simplicity and absence of reciprocating parts.**

The Seattle aerial truck, in addition to the aerial ladder, will carry a complete complement of ground ladders. A special feature will be complete enclosed protection for all rescue and fire fighting equipment in waterproof compartments.

- See the engineered Turbine engine powered San Francisco pumper on display

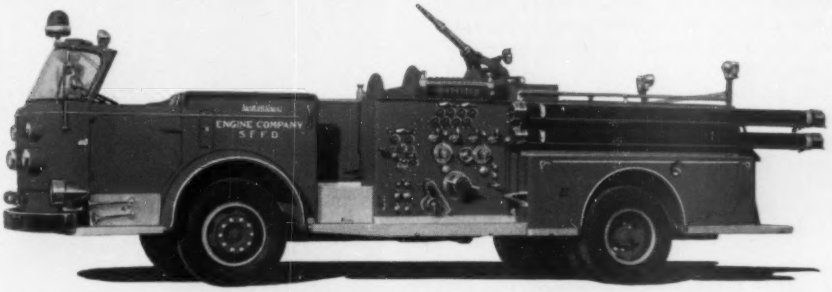
**I.A.F.C. CONFERENCE**

ROCHESTER, NEW YORK
SEPT. 12-15, 1960
DISPLAY SPACE B

*· The World's First and Largest*

# Scores another FIRST!

# AMERICAN LAFRANCE PRODUCTION MODELS



Turbine powered San Francisco Pumper, 1000 g.p.m. Class A Twin-Flow

## Greater Power, Reduced Maintenance

Fire Chief William Murray and officials of the City of San Francisco, Calif. have the honor of ordering the world's first turbine engine powered production model pumper. This new American LaFrance pumper will be powered by a Boeing 325 B.H.P. turbine engine.

The turbine engine will not only provide outstanding performance on the famed hills of San Francisco but will provide a large power reserve to provide 1000 g.p.m. Class A performance.

The prestige of American LaFrance for top quality and performance is emphasized by the addition of this new service tested turbine engine to the regular line of piston type engines. On the record of performance of the Boeing turbine engine in all classes of service, Fire Chiefs Fitzgerald and Murray recognize its many fire service advantages.

The leadership of American LaFrance in offering the turbine engine for fire service use again demonstrates progressive engineering to provide dependable fire protection.

●

*Everything you need to fight fire!*

APPARATUS
HOSE & NOZZLES
FOAMITE & CHEMICALS
EXTINGUISHERS
INDUSTRIAL & REFINERY SYSTEMS

**AMERICAN LAFRANCE**

A DIVISION OF STERLING PRECISION CORPORATION

ELMIRA, N.Y.

*LaFrance Export Corporation*
*Elmira, N.Y.*
*LaFrance Fire Engine and Foamite, Ltd.*
*Toronto 18, Ontario, Canada*

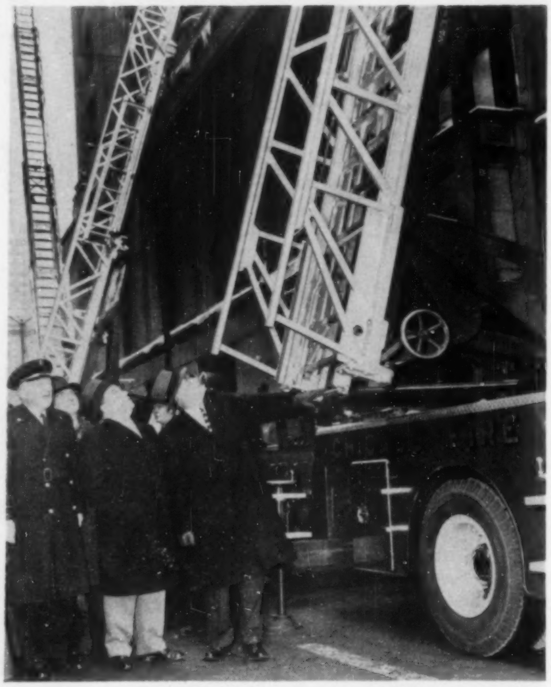
*Makers of Fire Fighting Equipment*

## 144-Foot Ladders

Chicago has a 144-foot Magious aerial ladder mounted on a Mack chassis. It's called a 14-story all-steel ladder. In fact, Chicago has four new aerial ladder trucks powered by Mack 276-hp Thermodyne engines.

The six-section 144-foot ladders featured on two of the four units are Chicago's longest and are the first on Mack-produced apparatus. The other two units feature 100-foot four-section ladders.

Mounting and operating high aerial ladders on two-axle trucks of 34-foot overall length is made possible through repositioning the ladder turn-table directly over the rear axle, and through the stabilizing action of four heavy duty jacks. ◄◄



*Four Mack aerial ladder trucks are inspected at Chicago's City Hall by Raymond J. Daley, chief fire marshal; Edward J. Prendergast, Fire Department automotive service engineer; Mayor Richard J. Daley; and Fire Commissioner Robert J. Quinn.*

## Philadelphia's Half-Trac Fire Fighter

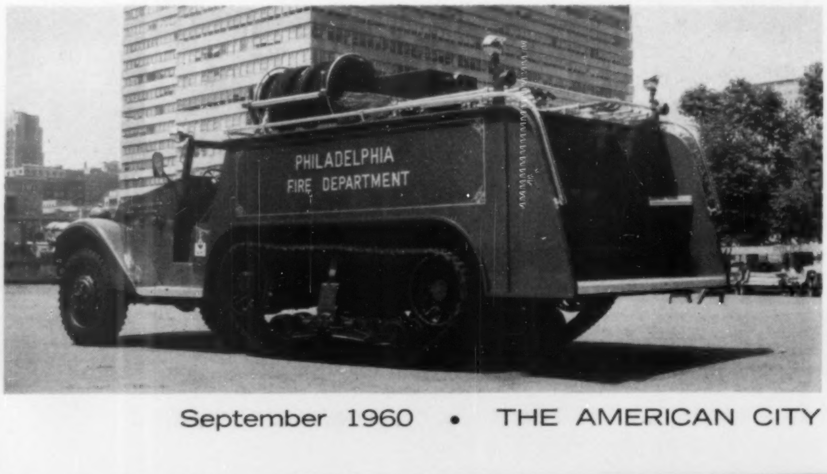
"Firetrac" is an Army halftrac reconstructed as a fire-fighting weapon for rugged terrain and against brush and grass fires, according to Fire Commissioner Frank L. McNamee of Philadelphia, Pa.

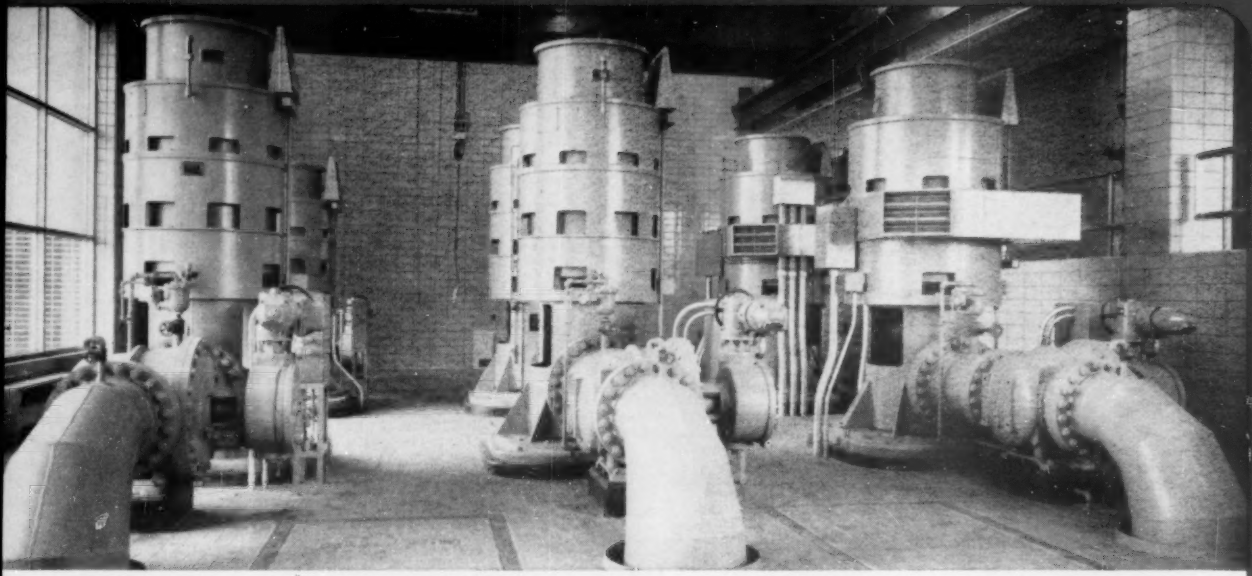
"Firetrac" has wheels up front and tractor treads in the rear and operates on conventional four-wheel drive with both high and low range. A water tank holds 1,050 gallons and two 300-foot hose lines can shoot water at 100-pounds pressure for a half-hour, with 300 pounds possible.

A special winching device on the front bumper ledge has been designed to pull trees or other obstacles out of the vehicle's path or to pull the unit itself out of muddy or hilly terrain. The new halftrac firefighter can cruise at 45 miles per hour.

The idea of converting a halftrac for fire fighting emerged from discussions between Joseph L. Tinney, executive director of the Philadelphia Civil Defense Council, and Commissioner McNamee. The "Firetrac" joins a group of unique fire-fighting tools which have developed under McNamee and Fire Chief George E. Hink over the last eight years. Philadelphia's Giant Deluge—which can pour 2,000 gallons of water per minute to a distance of 300 feet; the air compressor with five air hammers, spike and shovel drills and 300 feet of air hose; and the water-fog piercing applicator, which when inserted into a nozzle makes a plunging ram that may be driven through plaster, metal and aircraft fuselage, are some Philadelphia Fire Department specials. ◄◄

*It weighs 17,320 pounds, has wheels up front and tractor treads in the rear and its water tank holds 1,050 gallons.*





## PLENTY OF WATER for Springfield-66 MILLION GPD Max.

Springfield, Ohio has a completely new, automatic water supply system by Layne. It guarantees 66 million gallons per day for their present and future needs—a job complete by Layne—and a completely satisfied customer. Field Tests exceeded the guaranteed pump efficiencies by 1% to 2% on all units. Consulting Engineers: Black and Veatch, Kansas City Missouri. Water Supply Contractors: The Layne Ohio Company, Columbus, Ohio. Do you need complete water service? Get it from Layne. Write for Bulletin 100.

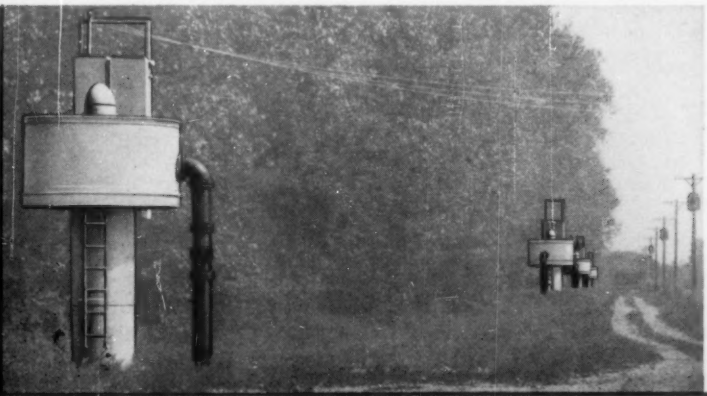
### Specifications

**RAW WATER**—10 Layne Gravel Wall Wells with Layne 18-8 Stainless Steel shutter screen and 10 Layne deep well pumps. 2800 GPM — 65 ft. TDH, 75 hp—440 Volts— 1750 RPM, located in two banks pumping to the filter beds. Pumps were installed 15 feet above ground level for flood protection.

**FILTERED WATER**—Six Layne high service pumps boosting filtered water into distribution system. Five are 12 MGD-285 ft. TDH, 700 hp—4160 volts—1185 RPM. Two are variable speed units. The sixth Layne Pump is a 6 MGD-285 ft. TDH, 400 hp—4160 volts—1185 RPM. All pumps operate through the central control panel.

City of Springfield, Ohio

LAYNE OFFERS COMPLETE WATER SERVICE: Initial Surveys • explorations • recommendations • site selection foundation and soil-sampling • well drilling • well casing and screen • pump design, manufacture and installation construction of water systems • maintenance and service • chemical treatment of water wells • water treatment—all backed by Layne Research. *Layne services do not replace, but coordinate with the services of consulting, plant and city engineers.*



Layne
SINCE 1882

WORLD'S LARGEST WATER DEVELOPERS

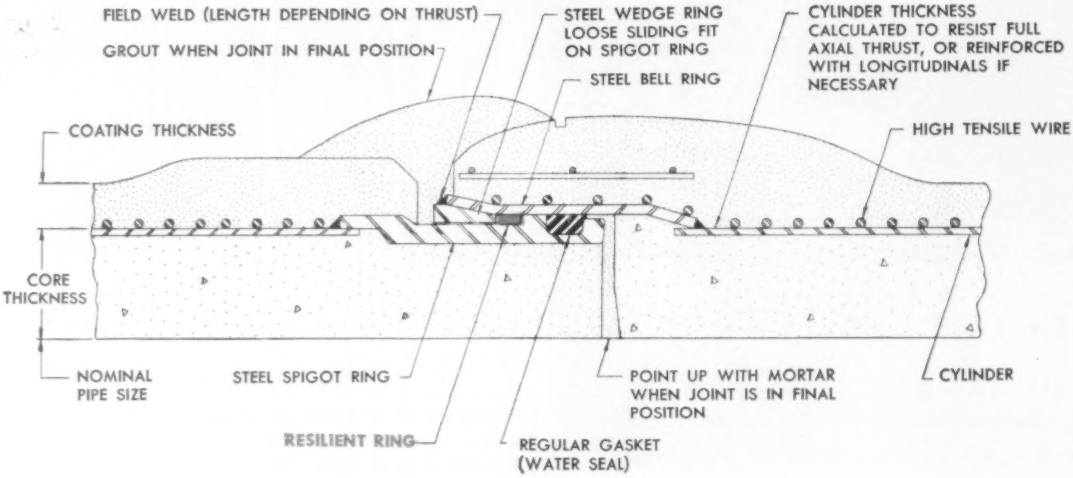
**LAYNE & BOWLER, INC., MEMPHIS**
GENERAL OFFICES AND FACTORY, MEMPHIS 8, TENN.

LAYNE ASSOCIATE COMPANIES
THROUGHOUT THE WORLD

Sales Representatives in Major Cities

**new**

# LOCK JOINT'S FLEXIBLE TIED JOINT *


FIELD WELD (LENGTH DEPENDING ON THRUST)
GROUT WHEN JOINT IN FINAL POSITION
STEEL WEDGE RING LOOSE SLIDING FIT ON SPIGOT RING
STEEL BELL RING
CYLINDER THICKNESS CALCULATED TO RESIST FULL AXIAL THRUST, OR REINFORCED WITH LONGITUDINALS IF NECESSARY
COATING THICKNESS
HIGH TENSILE WIRE
CORE THICKNESS
NOMINAL PIPE SIZE
STEEL SPIGOT RING
POINT UP WITH MORTAR WHEN JOINT IS IN FINAL POSITION
CYLINDER
RESILIENT RING
REGULAR GASKET (WATER SEAL)

RUBBER & STEEL FLEXIBLE TIED JOINT

## SECURE...FLEXIBLE...WATERTIGHT

Lock Joint Pipe Company, pioneer in the development of efficient, flexible, watertight joints for concrete pressure pipe, once again is first with the most practical solution for restraining thrust at joints where conventional blocking is impossible or impractical.

A greater measure of flexibility is imparted to this field-welded joint by the resilient ring, located between the weld and the watertight rubber gasket seal. This ring also improves the tensile characteristics of the joint by distributing the load more evenly around the periphery of the joint ring.

Detailed description of this joint may be obtained from Lock Joint Pipe Company on request.

**Patent applied for.*

LOCK JOINT
MADE ITS WAY BY THE WAY ITS MADE
CONCRETE PIPE

**LOCK JOINT PIPE CO.**
East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Kan. • Perryman, Md. • St. Paul, Minn. • Winter Park, Fla.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

# Have You Problems?

## These Free Booklets Will Help You

Check over these listings which will provide you with important up-to-date information on equipment and services that will assist you in solving municipal problems.

Write to address given or circle corresponding number on free post card on page 63.

### Water Meter Literature

241 These descriptive bulletins will bring you up to date on a complete line of disc, turbine, compound and propeller meters for high-accuracy measurement of water use and on a self-powered meter-register you can read outdoors. All available from BADGER METER MFG. CO., MEASURE-RITE INC., 4545 W. BROWN DEER RD., MILWAUKEE 23, WIS.

### Chews Up Stumps

242 Want unsightly tree stumps removed? You'll find the power-driven Stump-eater chews stumps to below ground-level, quickly, neatly, economically. For full facts, and information on other tree servicing equipment and techniques, write DAVEY TREE EXPERT CO., KENT 16, OHIO.

### 1960-61 Municipal Supplies Catalog

243 This 16-page catalog places special emphasis on signs, licenses and badges for use by police, sheriff, fire and transportation departments and personnel. For a copy, write S. G. ADAMS PRINTING AND STATIONERY CO., 10TH AND OLIVE, ST. LOUIS 1, MO.

### Truck Grader-Ice Blade

244 Explanatory literature gives details on this year 'round maintenance unit, which maintains, cuts and grades all types of gravel and dirt roads, eliminating ruts, holes and washboards, and in winter planes, breaks and removes ice and hard-packed snow. Write WAUSAU IRON WORKS, WAUSAU, WIS.

### Combination Pipe Finder-Leak Detector

245 Developed by FISHER RESEARCH LABORATORY, INC., PALO ALTO, CALIF., for use by water department, utility, pipeline and construction companies, this new dual-purpose unit features completely transistorized circuits and incorporates many new materials to produce greater accuracy, depth penetration and dependability under rugged field conditions.

### A Problem of Pump Selection

246 In this case history report, P10-S1 11, WEMCO, a division of WESTERN MACHINERY CO., 650 FIFTH ST., SAN FRANCISCO, CALIF., describes how nonclogging Torque-Flow pumps enabled the enlarged Hyperion sewage treatment plant to solve the difficult problem of handling sludge containing large amounts of sand with a minimum of maintenance.

### Cuts Down Mowing Problems

247 *Bulletin* No. 166 will acquaint you with several models of rotary mowers that cut and shred grass, brush, weeds and stalks easily. They range in size from one that mows 15 feet in one pass to small under-tractor models. For a copy, write ENGLER MFG. CORP., 4408 CENTER ST., HOUSTON 7, TEXAS.

### More Boating Fun for Your Citizens

248 A better understanding of successful marinas can be obtained from a brochure showing layout, specifications and particular features of modern floating docks and marinas. The floating feature compensates for changes in water level. All-steel box-type pontoons provide strength, stability and buoyancy. Ask for a copy of *Modern Marinas* from STANDARD STEEL PRODUCTS MFG. CO., DEPT. A, 2836 S. 16TH ST., MILWAUKEE 15, WIS.

### Refill Fibres for Power Street Sweepers

249 A. STEIERT & SON, INC., HATFIELD, PA., reports a wide variety of domestic and imported fibres available for power street sweeper brooms, as well as tough durable gutter wire in gauges and lengths to suit your needs.

### Announces New Trencher Series

250 Literature from THE CHARLES MACHINE WORKS, INC., PERRY, OKLA., announces the addition of a crawler-mounted trencher series to the well-known rubber-tired Ditch Witch trencher line. The new machines are especially suited to applications where traction or flotation is marginal or where a considerable amount of maneuverability is required.

### For Your Drafting Department

251 Draftsmen in city engineering and consulting engineering offices will want to learn about this new polyester wash-off film which produces erasable ink-black lines from pencil originals and permits ink or pencil-drawn additions. Called Dupro, the polyester film is a product of KEUFFEL & ESSER, DEPT. AC-9, THIRD AND ADAMS STS., HOBOKEN, N. J.

### Crane-Excavator

252 Literature from BUCYRUS-ERIE CO., SOUTH MILWAUKEE, WIS., announces the 22-B Series Two crane-excavator with new and improved features designed to reduce operating costs and boost production. The new unit is available as crawler, carrier or wagon mounted machine, fully convertible for crane, dragline, clamshell, hoe, or shovel.

### A One-Man Trencher

253 Literature from ARPS CORP., NEW HOLSTEIN, WIS., announces a totally new, one-man operated, self-propelled trencher, capable of handling all types of trenching applications and digging depths of 2½', 3½', 4½' and 5½' with tough chisel or slicer cutters available for digging widths of 4", 6", 8", 10" and 12".

### New Portable Light Tower

254 In this bulletin, RIG-A-LITE CO., 2102 69TH ST., HOUSTON 2, TEXAS, highlights the features and applications of its Trav-A-Lite portable light tower, a self-contained unit consisting of generator, extension tower (35'), and three or more flood lights.

### Convert to Mercury Street Lights in One Minute

255 A low-cost 14-pound ballast converts any NEMA-standard incandescent fixture to mercury in one minute. Called Convertalume, the new unit measures 6 13/16 inches in diameter, and is offered to utility companies and municipalities in 100-, 175-, 25-, and 40-watt capacity. For details, write PRECISION MULTIPLE CONTROLS, INC., 233 CHESTNUT, RIDGEWOOD, N. J.

### Paints for the Water Industry

256 A specialist in protective maintenance through paint announces availability of a brochure, entitled "Engineered Protective Maintenance for the Water Industry," and free sample contract forms and specifications that will enable you to get a quality paint job for less money. Write JOSEPH DIXON CRUCIBLE CO., PAINT PRODUCTS DIV., DEPT. AC-9, JERSEY CITY 3, N. J.

### New Family of Luminaires

257 REVERE ELECTRIC MFG. CO., 7420 LEHIGH AVE., CHICAGO 48, ILL., announces the addition of unitized oval mercury luminairies with built-in ballast components to its family of street lighting equipment. They're available in two series, one for high-level illumination, the other for low-level. Catalog information and technical data are available.

### TV Camera Spots Pipe Breaks

258 Pipe inspection by closed-circuit TV enables the viewer to see what the trouble is and where it is and to observe repairs in pipe as small as 6 inches in diameter. For one city using this method in a bad stretch of sewer line it meant a saving of $197,500. For details, write NATIONAL POWER RODDING CORP., 1000 S. WESTERN AVE., CHICAGO 12, ILL.

### Internal Pipe Wrenches

259 These units make a tough job easy, for they can be used to tighten or remove close nipples or other pipe and fittings without damage to threads, pipe walls or highly polished plate-finished pipe. For a descriptive folder, write THE RODDICK TOOL CO., 1023 PAULINE ST., ANAHEIM, CALIF., and ask about the Wedge Pruf Extractor which removes broken fittings and parts without breaking or jamming.

### Tractor Shovel Says "Can Do"

260 . . . with speed, power and economy to jobs that involve bulldozing, loading, stockpiling, scarifying, clean-up work, sweeping and digging. For literature giving full facts on the versatile "406" and its numerous attachments, write MASSEY-FERGUSON INDUSTRIAL DIVISION, BLOCK 1000 S. WEST ST., WICHITA 13, KANS.

*(See page 52 for more Bulletins)*

## YOU NEED *These catalogs*

Write to address given or circle corresponding number on free post card on page 63.

### Cab-Operated Materials Spreaders

261 Engine-driven, hydraulic and direct power take-off spreaders that provide the speed and capacity essential for fast, efficient ice control on streets and highways are detailed in literature available from GOOD ROADS MACHINERY CORP., MINERVA, OHIO.

### Motor Grader Bulletin

262 Design and engineering features which contribute to high productive capacity and long life in the new Caterpillar No. 12E motor grader are discussed fully in 12-page *Booklet* No. 33799. For a copy, write ADVERTISING DIVISION, CATERPILLAR TRACTOR CO., PEORIA, ILL.

### Accurate Surveyor's Instrument

263 *Booklet* T-1A describes a precise, versatile optical repeating transit that renders surveying projects routine, and brings to them the convenience and extra speed of automatic collimation setting. For a copy, write WILD HEERBRUGG INSTRUMENTS, INC., MAIN AT COVERT ST., PORT WASHINGTON, N. Y.

### Rotary Filing Easier

264 Horizontal rotary files and rotary-file desks are displayed in a 32-page brochure, "Work Organizers for the Sixties." With five pages of office floor plans and 14 pages of case history photos and drawings, the booklet shows personnel and space-saving factors for Wassell files. Copies are available from WASSELL ORGANIZATION, INC., WESTPORT, CONN.

### Reduce Water Treatment Costs

265 A transmitter that meters flows as small as .003 of a gpm and permits ratioing alum syrup direct to raw water the year 'round without problems of dilution, is saving the Salem and Beverly (Mass.) Water Supply Board $2,000 per year in water treatment costs. For details on this and other controls that improve operating efficiency, write THE FOXBORO CO., 959 NEPONSET AVE., FOXBORO, MASS., for *Bulletin* 1-15.

### Water Filter Sands and Gravel

266 When you specify Northern sand and gravel you get clean filtering media that have been carefully graded and feature the chemical and physical properties needed to assure proper filtering in the most meticulous water filtering plant. For literature, write NORTHERN GRAVEL CO., P. O. BOX 307, MUSCATINE, IA.

### Cuts Weeds and Grass at a Clip

267 Pull type or lift, the sturdy E-60 Clipper ably cuts weeds, grass and other growth up to 1½ inches in diameter, covering a full 60-inch-wide swath in a single pass. It's ideal for cutting highway right-of-ways, park grounds and landing fields. For descriptive literature, write SERVIS EQUIPMENT CO., 1000 SINGLETON BLVD., DALLAS, TEXAS.

### Street-Light Your Own Town

268 *Bulletin* GEA-7100 provides 28 pages of layouts, specifications and application data for entire street-lighting systems. It includes footcandle guides for Preferred Lighting Line of filament, mercury and fluorescent units and product data on lighting units, controls ballasts, poles and brackets. Write GENERAL ELECTRIC CO., SCHENECTADY 5, N. Y.

### Facts and Data for Engineers

269 This is the title of a book that tells the full story of Transite pipe for water service. Carrying capacity, strength, durability, corrosion-resistance, coupling methods, etc., are all included. For a copy, write JOHNS-MANVILLE, BOX 14, AC-9, NEW YORK 16, N. Y.

### Steel Gratings and Treads

270 KERRIGAN IRON WORKS, NASHVILLE 2, TENN., has just published a new and concise catalog on its line of Weldforged steel grating. In it are 12 pages of engineering data laid out for quick reference. A new arrangement of standard, close spaced and stair tread enables the user to find any particular type quickly. Tables of safe loads and weights are included.

### Packs in a Load of Refuse

271 A colorful, sound film points out the money-saving, efficiently-engineered features that the Load-Packer 600 brings to refuse collection service. Operation, compaction, payloads, hopper size, packing cycle, controls, etc., are all discussed. To arrange for a showing of "The Big-6 Story," write GAR WOOD INDUSTRIES, INC., RICHMOND, CALIF.

*(See page 56 for more Bulletins)*

OUTSTANDING RESULTS WITH WHITING'S Prostran POLYPROPYLENE

John Kiley, President of Atlantic Broom Company, Readville, Mass., with two new Prostran brooms, fresh off the production line. Note the full body and uniformity of the brooms, with bristles set close together, and so stiff that they easily support the weight of the heavy broom core without sagging. *Courtesy Hercules Powder Company.*

PROSTRAN-POLYPROPYLENE OFFERS ADVANTAGES SUPERIOR TO ANY NATURAL OR SYNTHETIC BROOM MATERIAL!

- Reduced Cost Per Sweeping Mile
- Longer Lasting Use-Life
- Excellent Sweeping Efficiency
- Minimum "Down-Time" For Repeated Broom Filling
- Toughness and Superior Abrasive Action
- Excellent Flex-Life for Ideal Bend Recovery
- Excellent Resistance To Chemicals, Solvents, Greases, Oils and Many Common Acids
- Heavy Duty Efficiency And Clean Sweeping
- Top Performance Under All Weather Conditions

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UNiversity 4-7414

E.B. & A.C. WHITING COMPANY
Burlington, Vermont

# YOUR INITIAL SAVINGS ARE

# 23%

# WITH DUBL-DUALS

You save 23% on the initial cost of Rockwell Dubl-Dual parking meters, because two mechanisms are combined in one case. For on-street or off-street parking, Dubl-Duals not only assure initial savings, but installation costs are slashed 50% as well. With only half as many meter stands, both maintenance and collection costs are cut. You can meet any spacing requirement by specifying Dubl-Duals with a few single Duals.

Dual, world's original maker of parking meters, can give you expert advice on street-marking to accommodate *more* cars . . . on-street or off-street. Rockwell offers the only *complete* line of automatic and manual parking meters to meet any need. For information, write: Dual Parking Meter Company, Subsidiary of Rockwell Manufacturing Company, Pittsburgh 8, Pa.

**BE SURE TO REGISTER AND VOTE**

AUTOMATIC

DUBL-DUAL

MANUAL

*The only complete line*
*of automatic and manual parking meters*

**DUAL PARKING METERS**
another fine product by
**ROCKWELL**

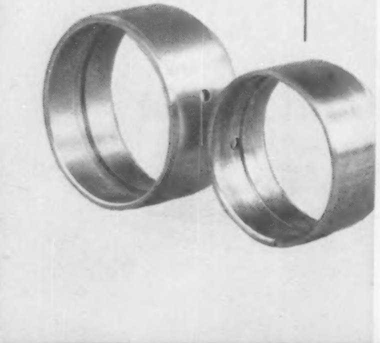
# Onan Electric
# full power after

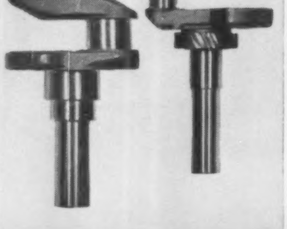
Onan
ELECTRIC PLANT

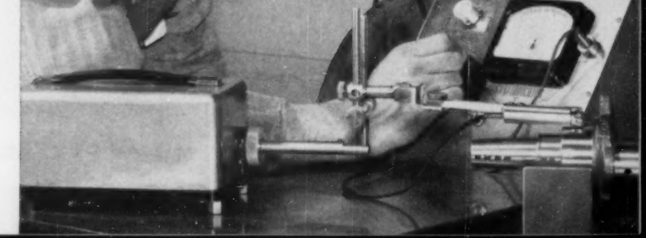
Typical Onan torture test—tougher by far than normal usage—proves Onan's ability to deliver on any job.

**Generous design assures longer life**—Husky Onan has double the bearing area of many equivalent rated engines . . . plus larger, stronger crankshaft to minimize breakdown and to give you longer, trouble-free service between overhauls.

**Exacting standards govern manufacture**—Years of specialized experience and extensive testing facilities control the quality of Onan Power Plants. Over 1000 different types and sizes of plants are produced by this same, careful method at Onan.







# Plant still delivers
# 12,197 hour test run!

*Run equivalent of 487,888 miles... killed and started... tortured, tested, retested... Onan Test Plant #1068 still delivered full-rated power*

A grueling endurance test that lasted one year, nine months and 12 days could not stop Onan Test Plant #1068. Development engineers used this production-built unit as a testing laboratory. And after it was all over, it still generated the full rated power promised on the nameplate. Proof that Onan's exacting standards and production testing give you a power plant with long, dependable service built in.

Over 1,700 other endurance tests have been run by Onan development engineers. Here's where every design feature and part had to prove itself before it could become a part of the Onan you buy. In addition, every type and size Onan Plant is tested under all operating conditions which affect its performance.

Hours of running in and testing under load are given every Onan before it is shipped. An independent testing laboratory retests Onan-tested Plants and certifies Onan testing methods—double assurance that every Onan will deliver its full nameplate rating. Only then does an Onan qualify for its Performance Certified Guarantee.

You buy *proven* performance when you buy an Onan Plant. See your Onan representative. You'll find his name in the telephone classified section in every major city, or write direct.

## ONLY ONAN GIVES YOU THIS CERTIFICATION

**PERFORMANCE CERTIFIED**

We certify that when properly installed and operated this Onan electric plant will deliver the full power and the voltage and frequency regulation promised by its nameplate and published specifications. This plant has undergone several hours of running-in and testing under realistic load conditions, in accordance with procedures certified by an independent testing laboratory.

D. W. ONAN & SONS INC.
Minneapolis 14, Minnesota

**Onan®**

World's
Leading Builder
of Electric
Power Plants

**D. W. ONAN & SONS INC., 2664 UNIVERSITY AVE. S.E., MINNEAPOLIS 14, MINN.**

Use Northern Gravel
for
Rapid Sand Filter

City of Milwaukee Water Filtration Plant.

**Filter Sand Specifications** are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to specifications. Filter sand can be furnished with any effective size between 0.35 MM and 1.20 MM.

**Chemical Quality** of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. This requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

**Filter Gravel** supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 45 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

**Northern Gravel Company**

Box 307 **Muscatine, Iowa** Phone: AMherst 3-2711

## CATALOGS *for Improved Municipal Services*

**Write to address given or circle corresponding number on free post card on page 63.**

### Crawler Tractors on the Job

**272** A new 20-minute, 16-mm color movie reports on the engineering and design features of the Oliver OC-9 and OC-96 crawler tractors and explains the simplified operation achieved with Trans-O-Matic transmission. Operating scenes are from all over the country. To arrange a showing, write THE OLIVER CORP., 400 W. MADISON ST., CHICAGO 6, ILL.

### Water Services Bulletin

**273** *Bulletin* 100 will introduce you to or bring you up to date on the complete water services offered by a company with 75 years of experience with community water problems. Services range from initial geological studies through well drilling, pump installation and maintenance. Write LAYNE & BOWLER, INC., MEMPHIS 8, TENN.

### Concrete Cylinder Force Mains

**274** In this bulletin PRICE BROTHERS, E. MONUMENT AVE., DAYTON, OHIO, describes the many features that recommend its concrete pressure pipe to services where laying and service conditions are difficult, high initial and high ultimate carry capacity essential, and long service with minimum maintenance sought.

### Safe Fun for Tots

**275** Descriptive literature about merry-go-rounds, slides, swings, see-saws and other well-constructed playground equipment that guarantee safe play for youngsters can be obtained from J. E. BURKE CO., P. O. BOX 549, DEPT. 34, FOND du LAC, WIS., along with a complete playground planning and specification file.

### Tests Moisture in Wood, Plaster

**276** New literature from MOISTURE REGISTER CO., 1510 W. CHESTNUT ST., ALHAMBRA, CALIF., describes five types of moisture registering instruments, which municipalities will find very useful for testing lumber, concrete, plaster, paint, etc. All are rugged, simple to operate and accurate.

### Conserve Water, Save Money

**277** A new shower metering valve, available on an entire line of multi-person showers suited for swimming pool, school and institutional service, delivers a supply of water for about 40 seconds with each pull of a handle. Speeds up bathing by group users, eliminates the possibility of showers left running. Write BRADLEY WASHFOUNTAIN CO., 233 W. MICHIGAN ST., MILWAUKEE 1, WIS., for *Bulletin* H-1322.

### Rubber Gaskets for Low Head Service

**278** Tylox joints couple fast and stay watertight, assuring leakage-proof sewer pipelines at less pipe-laying cost. To familiarize yourself with the time-saving, cost-saving engineering advantages of Tylox rubber gaskets, write HAMILTON KENT MFG. CO., 427 W. GRANT ST., KENT, OHIO.

*(See page 58 for more Bulletins)*

# WHEELING WARE

All the strength and economy of steel!

Strongest construction features known!

Extra-heavy bottom!

Top, bottom reinforcing bands welded to body!

Handles fastened permanently!

Galvanized with Dura-Zinc-Alloy after forming!

No rivet holes to cause rusting!

# Lasts and lasts!

Wherever the going's rough . . . wherever you need long-lasting ware . . . be sure to specify Wheeling heavy-duty Ware. Made to last and last, it's always galvanized *after* fabrication . . . always fully protected with a heavy coating of Wheeling's *exclusive* Dura-Zinc-Alloy®.

What's more, Wheeling Galvanized Ware comes in a complete range of styles and sizes—so you get the item that's exactly right for your job. Ask your Wheeling distributor, warehouse or sales office for details. Wheeling Corrugating Company, Wheeling, West Virginia.

*Other Wheeling Items for Municipal use include:*

**Utility Basket** is light, yet strong. Easy to carry. Extra handy for collecting all types of litter.

**Heavy-Duty Mop Bucket** has tough, birch-wood mop rolls, large foot pedal and positive-pressure wringer.

**Heavy-Duty Pail** is made of heavy-gauge steel so it can withstand continuous, extra-rough use.

**Swing Door Cover** with heavy-duty can makes ideal container for indoors or out. Large door opening.

**Expanded Metal Refuse Basket** has welded reinforcing bands, one-pieced dished bottom.

**WHEELING CORRUGATING COMPANY · IT'S WHEELING STEEL!**

Immediate delivery on all stocked items from these warehouses: *Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Minneapolis, New Orleans, New York, Philadelphia, Richmond, St. Louis.* Sales Offices: *Atlanta, Houston*

## MONEY SAVING *catalogs*

Write to address given or circle corresponding number on free post card on page 63.

### It's Loaded with Loader Facts

279 From this 16-page illustrated bulletin you'll learn the facts and figures behind the Model W-5, a versatile loader with 3000 pounds carry capacity, 75% more breakaway force, said to save up to 25% in investment cost over competitive machines of similar size. For a copy, write J. I. CASE CO., DEPT. J1560, RACINE, WIS.

### Sand and Gravel for Water Filters

280 In this brochure, EAU CLAIRE SAND & GRAVEL CO., EAU CLAIRE, WIS., gives facts on Red Flint sands and underdrain gravel, a high silica content product, uniformly graded within close limits and available in large as well as small sizes and processed to exacting specifications.

### Test Cores from Concrete

281 Engineers and others responsible for taking accurate test samples of concrete will be interested in this bulletin, which discusses a pavement coring device that can drill 1 inch every 30 seconds in steel-reinforced concrete. Write MOBILE DRILLING INC., DEPT. 12, 960 N. PENNSYLVANIA ST., INDIANAPOLIS, IND.

### The Solvay Calcium Chloride Road Book

282 This 23-page illustrated booklet will be of value to those concerned with the design, construction and maintenance of unpaved surfaces. It deals with uses of calcium chloride in dustlaying, surface consolidation and graded aggregate bases. A fourth section covers materials and specifications. For a copy, write ALLIED CHEMICAL, SOLVAY PROCESS DIVISION, 61 BROADWAY, NEW YORK 6, N. Y.

### Peps Up Water Filters

283 A circular available from PALMER FILTER EQUIPMENT CO., P. O. BOX 1655, ERIE, PA., explains why the Palmer surface wash agitator requires about 40% less wash water, eliminates mud balls, prevents cracking and shrinking of beds, enables filter runs to be increased by as much as 50%.

### Protective Coatings for Sewage Plants

284 *Booklet* T93 describes the protective qualities and specific applications of Bitumastic coatings in sewage treatment plant field. Available from KOPPERS CO., INC., TAR PRODUCTS DIV., DEPT. 103J, PITTSBURGH 19, PA.

### More Mileage for Your Tax Dollar

285 This bulletin shows how use of a one-machine equipment pool—the 'Payloader' tractor shovel and its full line of attachments—enables any community to stretch its tax dollars. For a copy, write THE FRANK G. HOUGH CO., 710 SUNNYSIDE AVE., LIBERTYVILLE, ILL.

### Brush Chippers

286 MITTS & MERRILL, 1003 S. WATER ST., SAGINAW, MICH., in announcing their 1960 brush chipper models, point out that these units incorporate many new features which contribute to easier operation, greater efficiency and lower upkeep and maintenance cost. For literature, write the company.

### Outdoor Bleachers and Grandstands

287 A 4-page folder pictures, describes and gives specifications for steel and aluminum portable bleachers, steel deck grandstands and permanent grandstands. For a copy, write BERLIN CHAPMAN CO., BERLIN, WIS.

### For Jobs Unlimited

288 A 4-page descriptive folder gives specifications for the husky new Motrac crawler, which includes within its work range bulldozing, grading, excavating, backfilling and loading. For a copy, write MINNEAPOLIS-MOLINE CO., HOPKINS, MINN. Ask for *Section* 7.

### Rollers and Vibratory Compactors

289 Literature on a complete line of compacting equipment to meet every need in compaction—for fill, base, subbase and finishing surface of city street, rural road and super highway—can be obtained by writing to THE GALION IRON WORKS & MFG. CO., DEPT. A-90, GALION, OHIO.

### Fast-Working Power Digger

290 In this descriptive bulletin, ALLIED EQUIPMENT DEPT., FORD MOTOR CO., 2500 E. MAPLE RD., BIRMINGHAM, MICH., highlights the versatility, power, maneuverability and speed of the low-cost Sherman power digger. Illustrations and specifications are included.

*(See page 61 for more Bulletins)*

FLEXICROME

90% of the Cities in the United States use this ROD for cleaning sewers . . .

THERE MUST BE A REASON!

- BEST BY LABORATORY AND FIELD TEST
- SPECIAL STEEL FOR SEWER RODDING
- ACID RESISTANCE TREATED
- GROOVED COUPLINGS

**FLEXICROME RODS** are the end result of many years of field and laboratory tests. When you specify **"Flexicrome"** you get these important, exclusive features:

* Special alloy steel for extra toughness and durability.

* Heat fused rod coating for better sewer acid resistance.

* Solid center, grooved couplings for extra rod end support, and faster assembly.

Patent No. 2,471,060

FLEXIBLE INC.

3786 Durango Ave. • Los Angeles 34, Calif.
LIMA, OHIO DALLAS, TEXAS

*Safeguard Public Health and Public Funds with the one pipe that has all the features you can trust!*

Sewer line failure not only endangers public health, but costs staggering sums in replacement time and materials. That's why Baxley, Georgia, insisted on Vitrified Clay Pipe for its sewer expansion project. Unlike many substitute materials, Clay Pipe does not rust, rot, corrode, disintegrate or deform . . . is completely resistant to the deteriorating action of *all* sewerage gases and acids. Available with joints that meet every requirement.

It is the *one pipe* with all the advantages you want . . . *all* the features you can trust!

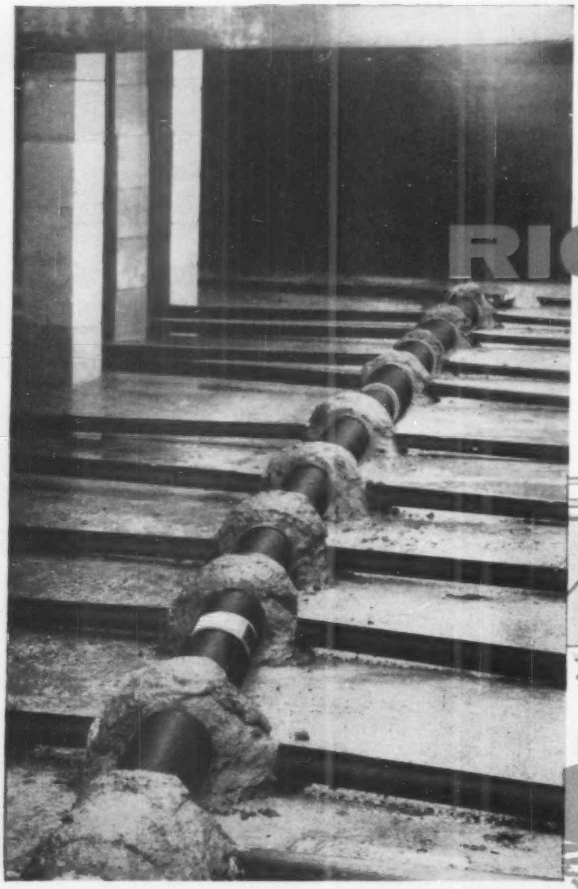
PUBLIC OFFICIALS: J. M. Dunn, Mayor
CONSULTING ENGINEERS: Wiedeman & Singleton, Atlanta;
T. L. Turner, Resident Engineer
CONTRACTORS: C & L Engineering Co., Augusta

*WRITE TODAY for assistance in fitting Clay Pipe into your sewer project . . . and be sure of the lowest cost with the best performance.*

LORAIN
NEW
COMPRESSION JOINTS
MAKE CLAY PIPE
BETTER THAN EVER!

*Vitrified* **CLAY PIPE** *Never Wears Out*

**NATIONAL CLAY PIPE MANUFACTURERS, INC.** 1820 N Street, N. W., Washington 6, D. C.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio • 445 Ninth St., San Francisco 3, California • Box 172, Barrington, Illinois • 1401 Peachtree St., N.E., Atlanta 9, Georgia



800-sq. ft. filtering system has 4" manifold with 28 ten-ft. lateral attachments of 2" pipe (shown above before being covered by sand filtering element).

## MARINE ARENA PROTECTS $700,000 INVESTMENT WITH

# RIGID PIPE

*made of* ***ABS*** *Plastic*

## RIGID PIPE FILTERING SYSTEM INSTALLATION OFFERS NEW PROOF OF SUPERIORITY OVER CONVENTIONAL TYPE

Nearly three-quarters of a million dollars worth of marine life and equipment—including "Paddy", the famous performing porpoise—is now being protected by a new, rigid ABS pipe filtering system. This unique application, using Crescent Plastic's CYCOLAC ABS pipe, has ended all fear of filtering system failure for the Marine Arena of Madiera Beach, Florida. In previous applications, metal pipe had failed in a matter of weeks, and polyethylene pipe had caused constant concern for years. Now, with rigid pipe on the job, Marine Arena obtains a high level of clear, pure water, with satisfactory protection against rust, corrosion and ionization caused by salt water.

**BE *ABSolutely* SURE . . .**
**INSIST ON RIGID *ABS* PIPE**
*made of*
**CYCOLAC®**
**THE BORG-WARNER PLASTIC THAT IS TOUGH, HARD AND CORROSION-RESISTANT**

***Write for the name of your nearest supplier***

**MARBON CHEMICAL** DIVISION **BORG-WARNER**
WASHINGTON WEST VIRGINIA

## FREE catalogs

Write to address given or circle corresponding number on free post card on page 63.

### New Development in Pipe Leak Clamps

**291** A new 3-color folder tells how you can minimize pipe leak repair inventories and achieve greater latitude of repair through use of Redi-Clamps and Sta-Grid Gaskets. Complete details together with installation instructions are included. For a copy, write SMITH-BLAIR, INC., 535 RAILROAD AVE., SOUTH SAN FRANCISCO, CALIF.

### An Easy Turning Curb Valve

**292** Its design is simple and practical; straight plug turns easily even after prolonged idleness; no mechanical seating device to wear or cause sticking; seat is protected against damage and corrosion. Water works officials can obtain full facts by writing to DEPT. B, MUELLER CO., DECATUR, ILL. Request "The Oriseal Valve—Test Results."

### 2-3-Ton Maintenance Roller

**293** Here's a powerful, easy-handling, portable, short-turning roller that offers great compaction effectiveness, operates in close quarters and close to curbs, is available as a straight tandem and is perfectly balanced for trailing. A specification sheet available from SHOVEL SUPPLY CO., P. O. BOX 1369, DALLAS 1, TEXAS, will acquaint you with this and others in the Ferguson line.

### Planning Safe Spectator Seating

**294** This 6-page brochure points out how Universal portable steel bleachers enable you to pre-plan and design your outdoor seating for maximum use. An easy-to-read chart shows seating capacities and dimensions and engineering service for assistance in planning layouts is offered. For a copy of "How to Plan Your Outdoor Seating," write UNIVERSAL BLEACHER CO., CHAMPAIGN, ILL.

### Transports Personnel and Materials

**295** CUSHMAN MOTORS, LINCOLN, NEB., announces a new 6-page folder that illustrates and describes its line of gasoline and electric Trucksters, which are used for personnel transportation, light materials handling and maintenance operations. The brochure, "They're All Muscle," also includes typical applications and specifications.

### How to Wash a Window

**296** A new booklet explains how you can cut window washing maintenance time in half, prevent costly accidents due to falls, and substantially reduce maintenance supply costs. It's called "The Revolutionary Tucker High Window Washer" and is available from TUCKER MFG. CO., 112 FOURTH AVE., S.E., CEDAR RAPIDS, IA.

### Annoyed by Filter Flies?

**297** Here's an agent that kills trickling filter flies in larva, pupa and adult stages, without building up an immunity and without impairing trickling filter efficiency. And it is safe, economical and easy to use. For literature and field test reports of R. S. C., write GLENN CHEMICAL CO., INDUSTRIAL CHEMICALS DIV., CHICAGO 14, ILL.

*(See page 69 for more Bulletins)*

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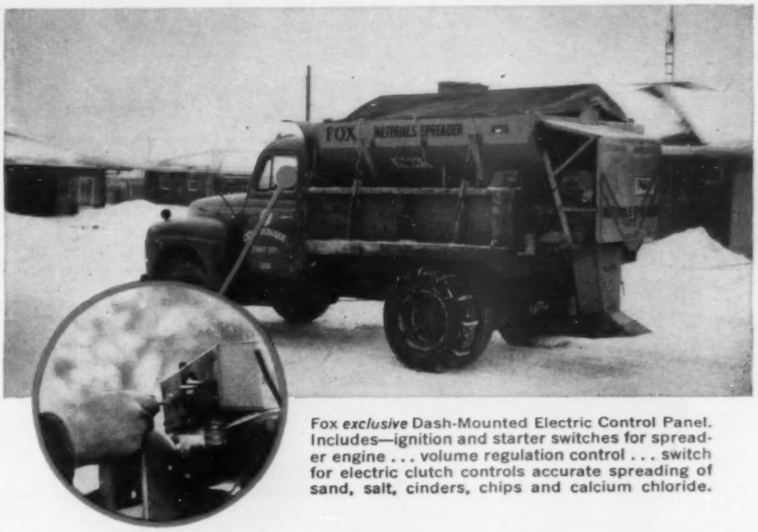
# FOX spreader feature No. 3



Fox *exclusive* Dash-Mounted Electric Control Panel. Includes—ignition and starter switches for spreader engine . . . volume regulation control . . . switch for electric clutch controls accurate spreading of sand, salt, cinders, chips and calcium chloride.

## Spreader control **inside** cab lets one man do work of 2 or 3

Put yourself in the middle of winter. Roads and streets are icy, dangerous! The job, to get them sanded in the quickest possible time. Which materials spreader will do best for you? Some require two, even three men . . . take more than one pass to cover a street . . . others work slow, hold up traffic. At any rate, chances are there will be breakdowns . . . cheap units are light-duty . . . chain and apron feed units just naturally give trouble.

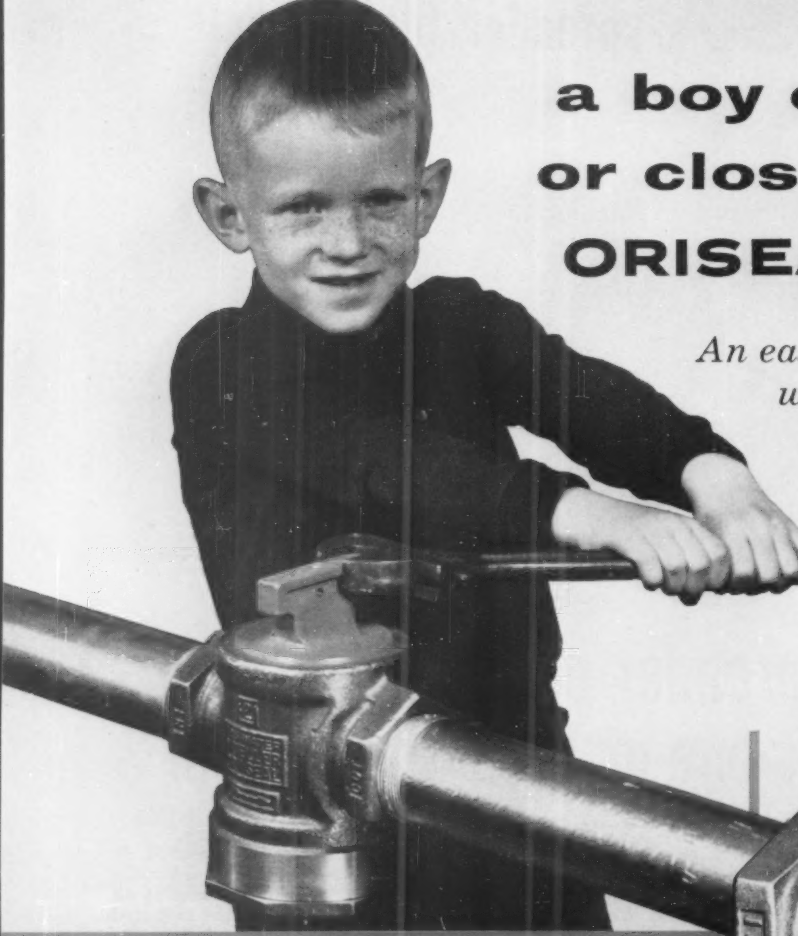
The solution—Fox Mountable Materials Spreader! Big, heavy-duty, auger feed, powered by its own 18 H. P. engine. Installs on any standard dump body in only 15 minutes (take it off just as fast). *All* controls are mounted right on the truck dash . . . at fingertip reach to the operator. *Yes, only one man does the job.*

On the Fox, he simply flicks the spreader ignition switch, pushes the starter button and sets the spreading rate. Then, on the street, he snaps the electric clutch switch to lay a smooth even spread of material in widths from 8 to 40 feet . . . any desired thickness, and at truck speeds from 5 to 40 miles per hour. Spreads *under* parked and passing cars, too . . . ahead of rear truck wheels for added traction.

### To see all the Fox Features ASK FOR A DEMONSTRATION

The Fox Materials Spreader will cut your labor, time and equipment expenses to the bone. A catalog . . . case history reports . . . even a no-obligation demonstration are yours for the asking. *Write, call or wire collect for the name of the nearest Fox distributor, who will gladly give you a demonstration.*

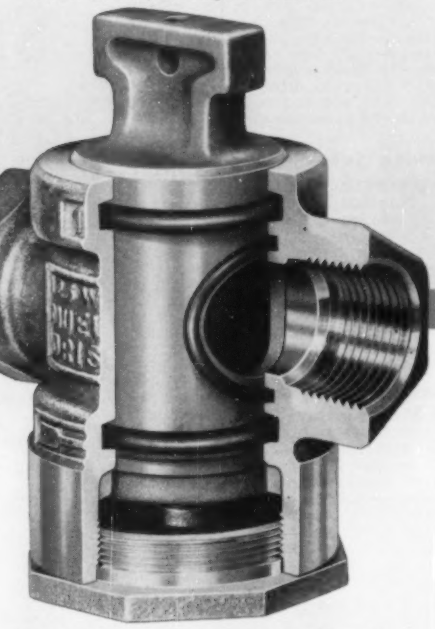
**FOX RIVER TRACTOR CO.** ROAD MACHINERY DIVISION
Dept. R15, 1020 N. Rankin St. • Appleton, Wisconsin • Phone: REgent 4-1451



# a boy can open or close the new ORISEAL® VALVE!

*An easy turning Curb Valve with all the features you've looked for.*

Try it . . . Prove to yourself how easy this valve will open and close. The Teflon coated straight plug turns easy even after prolonged idleness.



The Key to the dependable long-life performance of the Oriseal is in its simple, practical design. The entire valve assembly is only six parts . . . the three "O" rings in the sturdy valve body, the Teflon coated straight plug . . . the valve cap.

The Oriseal turns easy without grease . . . has no mechanical seating device to wear or cause sticking . . . the seat is protected against damage and erosion.

We are happy to offer the Oriseal as another beneficial product developed for the Water Industry . . . the direct result of over a century of experience and tradition for quality "craftsmanship". See your Mueller representative or write Dept. B, Mueller Co., for your copy of "The Oriseal Valve —Test Results".

**MUELLER CO. DECATUR, ILL.**

Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario.

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Will be Paid
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FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 PARK AVENUE SOUTH
NEW YORK 16, N. Y.

## MUST YOU DO IT THE HARD WAY?

**If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.**

To THE AMERICAN CITY's Catalog Supply Department:
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A Listing of Your Business Connection is Important

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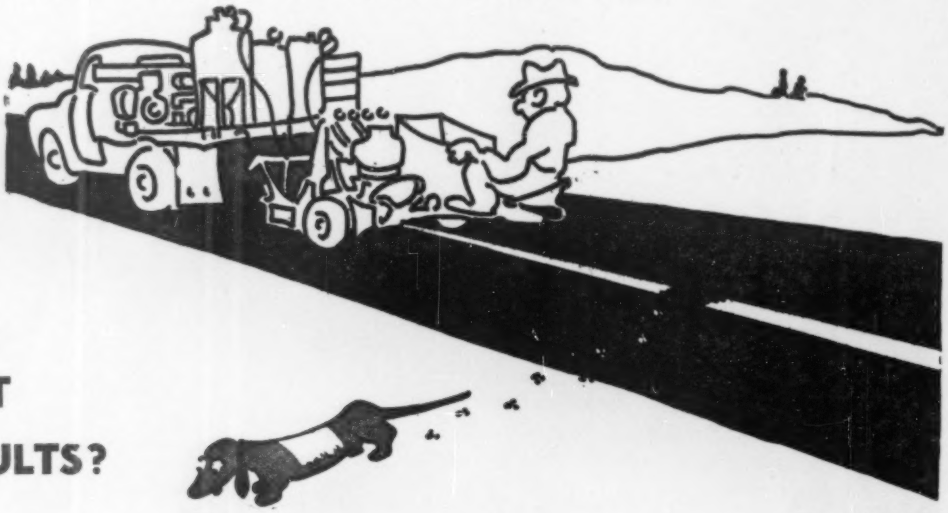
A Listing of Your Business Connection is Important



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# YOU WANT
# QUICK RESULTS?

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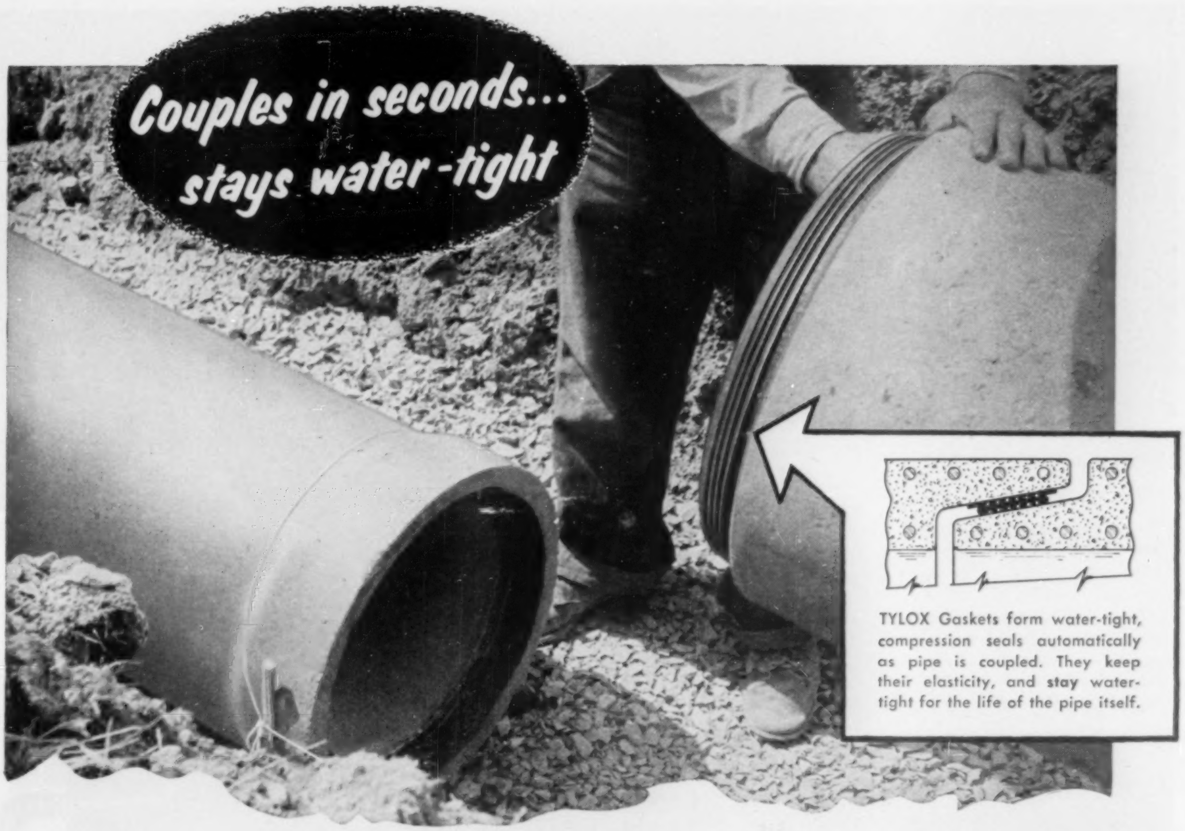
**Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.**



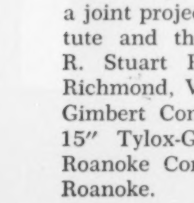
TYLOX Gaskets form water-tight, compression seals automatically as pipe is coupled. They keep their elasticity, and stay water-tight for the life of the pipe itself.

# TYLOX *Rubber* PIPE GASKETS

It takes only a few seconds to couple Tylox-Gasketed sewer pipe, but even more important than that, finished joints *stay* tight, preventing leakage in or out, and making future maintenance unnecessary by eliminating root and sediment problems. The installation above was a joint project of the Virginia Polytechnic Institute and the Town of Blacksburg, Virginia, R. Stuart Royer & Associates, Consultants, Richmond, Va. Pipe work was by Gimbert and Gimbert Construction Co., Roanoke, Va., and 15" Tylox-Gasketed Pipe was furnished by Roanoke Concrete Products Co., Inc., also of Roanoke.

Pipe joints formed with Tylox rubber Gaskets stay tight because they keep their original elasticity. Under ground and under compression, sewerage and industrial waste acids won't deteriorate the specially compounded Tylox rubber, and pipe angularities from shifting soils or overburdens can't break their seal. Leakage, with resultant evils of root and sediment penetration is whipped because it *can't start!* Waste disposal designers and builders know this . . . and it is why there are more TYLOX Gaskets in low head service than all other types of gaskets combined. As for speed of assembly, there's no joint that can be coupled any faster than TYLOX.

***WRITE FOR MORE TYLOX INFORMATION***



if you are not thoroughly familiar with its time-saving, cost-saving engineering advantages. Tylox Joints are the one sure way to get water-tight pipe lines at less pipe-laying cost.

5134-3

**HAMILTON KENT**
**MANUFACTURING COMPANY**
**KENT, OHIO**
**427 West Grant St. ORchard 3-9555**

**NORTHWEST: Seattle 1, Wash., MUtual 2-7667 • CANADA: Cooksville, Ont., ATwater 9-3671**

MEASURE-RITE
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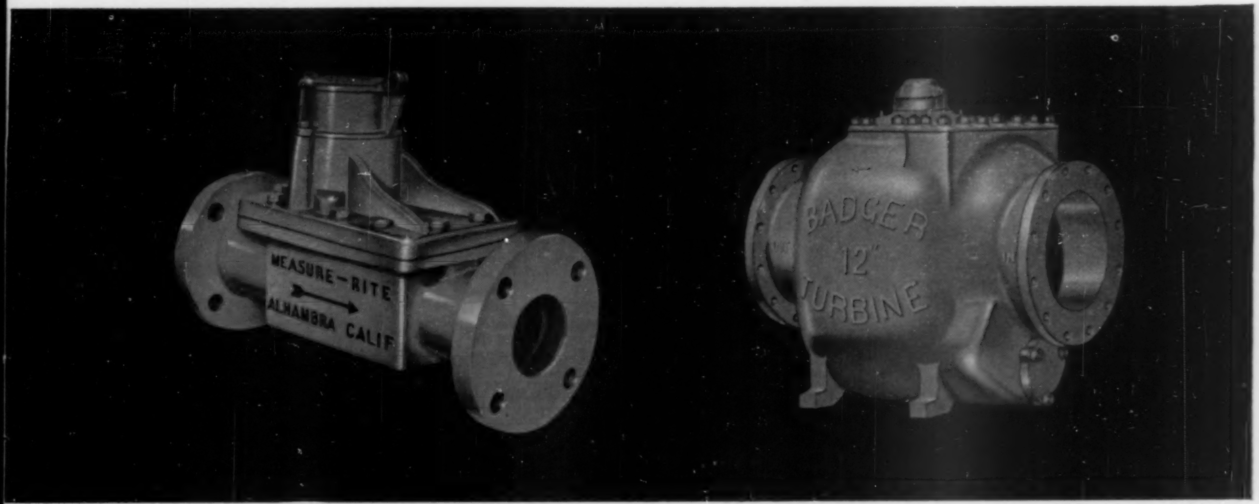
Badger

Read-o-Matic*

the only
self-powered meter-register
you can read outdoors

All Badger models can be equipped with the Read-o-Matic, for economical meter reading at conveniently located stations.



## From Badger's "meter-ology" specialists...

# a complete line of disc, turbine, compound and propeller meters for any high-accuracy job

For over 55 years, Badger has concentrated its research, design, development and production on meters. This "meter-ology" specialization has brought about many of the most important advances in the field.

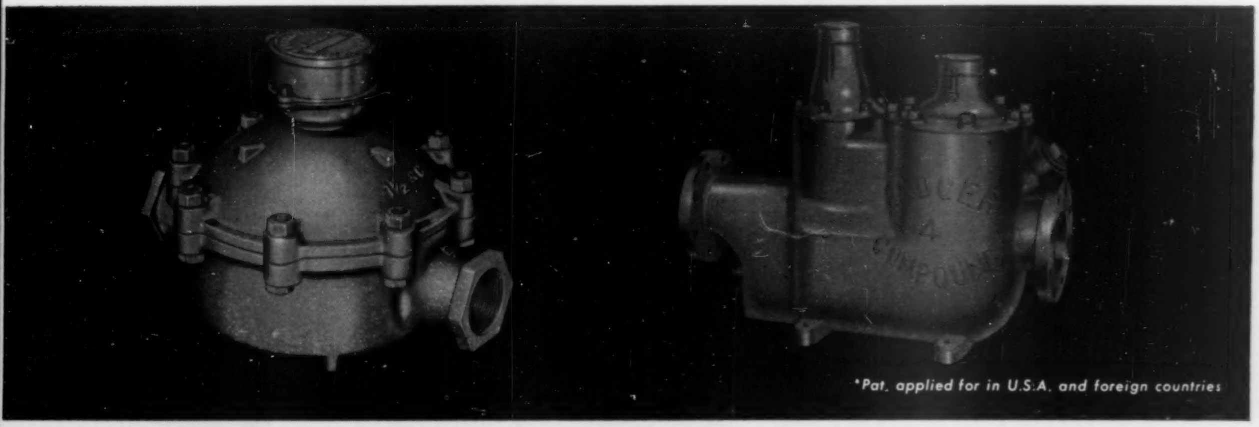
Badger disc meters, for example, feature the exclusive dovetail thrust roller insert as standard equipment. This insert cuts wear and noise at the water level, and guarantees more accurate registration.

Our propeller meters, too, offer a major design advantage: they can be mounted even in an inclined position without affecting meter accuracy.

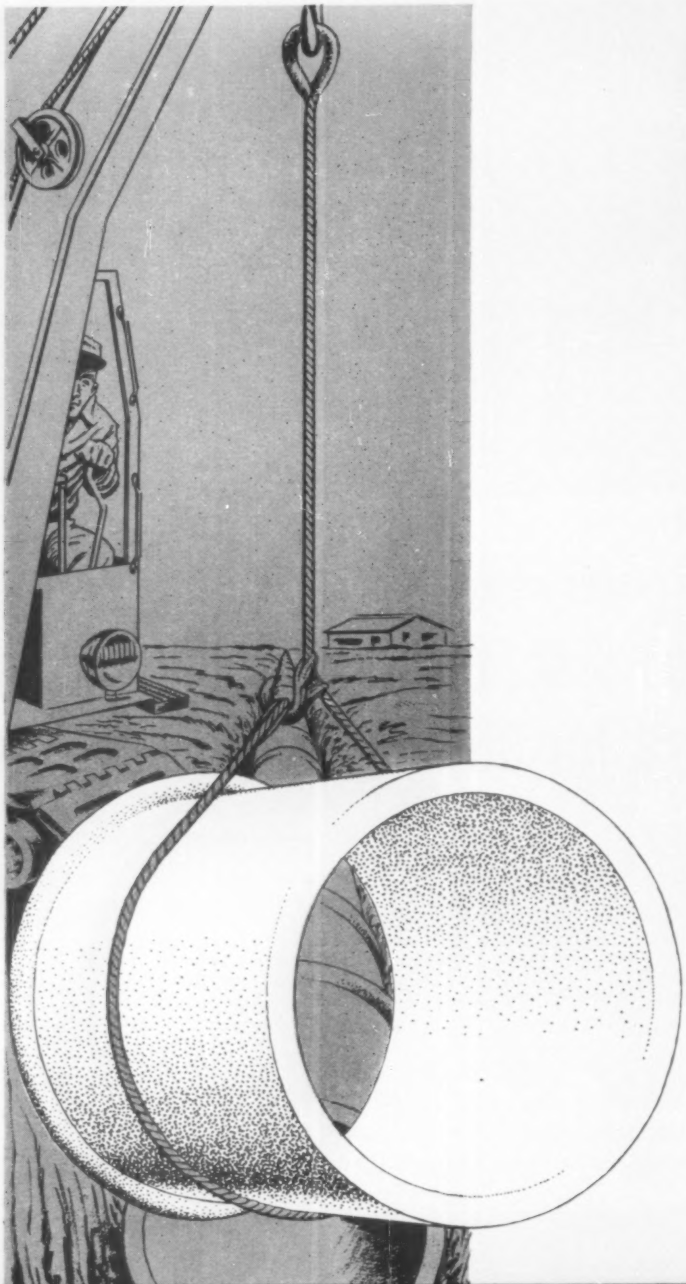
Still big news is the revolutionary Read-o-Matic outdoor meter-register — a completely new product that further proves Badger's "meter-ology" leadership.

Your Badger representative — a "meter-ology" specialist himself — will give you complete details on our whole line of meters, including the popular models shown here. Ask him to call on you soon.

**Badger Meter Mfg. Company**
MEASURE-RITE, INCORPORATED, SUBSIDIARY
4545 West Brown Deer Road, Milwaukee 23, Wisconsin



*Pat. applied for in U.S.A. and foreign countries



# bury it, but don't forget it

Once sewer pipe is in the ground, you don't want to dig it up again.

The best way to avoid that expensive problem is to positively prevent blockage. A simple maintenance expedient will always keep your sewer lines open . . . regular use of ZEP SEWER AID. This powerful compound will quickly clear sewer lines of ANY alkali-soluble obstruction . . . accumulated debris, grease encrustations, industrial waste, even tough tree roots.

In emergencies, fast acting Zep Sewer Aid will clear the line from end to end with little time and labor cost, and NO investment in mechanical equipment. It is harmless to the sewer pipe itself, even when used for prolonged periods. In fact, it's a good maintenance buy that solves your sewer clearing problems *when* or *before* they arrive.

***Zep Maintenance Experts cover the country. If you want to talk to one, drop us a line, or just write for information and you'll have it by return mail.***

## ZEP MANUFACTURING CORPORATION

**ZEP MANUFACTURING CORPORATION**
P. O. BOX 2015, ATLANTA 1, GA.

We would like to try ZEP SEWER AID. Please send us a FREE sample.

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COMPANY____________________

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*FIRST*
*in Maintenance and Sanitation*

**ATLANTA**
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**DALLAS**
1103 Slocum Street

**CLEVELAND**
13112 Broadway

**NEWARK**
231 Johnson Avenue

FIRST IN MAINTENANCE PRODUCTS
Zep

# FREE catalogs

## You will find of interest

**Write to address given or circle corresponding number on free post card on page 63.**

### New Face on the Refuse Scene

**298** THE HEIL CO., MILWAUKEE 1, WIS., has just taken the wraps off its new refuse collection unit, the Colectomatic Mark II, which is available in 13, 16 and 20 cubic yard capacities and is quite new and different in design, and highly effective in operation. *Bulletin* BH-60106 will tell you all about it.

### Eliminates Trenching

**299** This earth boring tool can reduce your pipe installation costs as much as 90% and at the same time save your pavement. It is discussed in the *Hydrauger Booklet*, which shows relative costs and speed of boring as well as specifications of various Hydrauger models. Available from HYDRAUGER CORP. LTD., 681 MARKET ST., SAN FRANCISCO 5, CALIF.

### Economical Snap Coupling for Snow Plows

**300** A new work-tested snap coupling for snow plows enables one man to couple a plow and truck within 3 seconds without leaving the cab. The universal coupling can be used with any truck on any plow. Time, manpower, money-saving and operational features are presented in literature available from KASTEN MFG. CORP., ALLENTON, WIS.

### Turn Sludge Disposal into a Profit

**301** Throwing away a possible additional source of municipal income by burning or dumping sewage sludge cake? *Sewage Sludge Utilization Datalog* can show you how to turn sewage sludge disposal into a profitable revenue-producing municipal operation. Write ROYER FOUNDRY & MACHINE CO., 165 PRINGLE ST., KINGSTON, PA.

### If You Do Purchasing

**302** . . . for small or large governmental units and would like to bring more efficiency and cost-savings to the job, you'll want to get details on Snapout Purchase Order Forms, an integrated purchasing system embodying internal control. For catalog and sample purchase order, write GOVFORMS CO., 111 BROADWAY, NEW YORK 6, N. Y.

### Maintenance-Free Chain

**303** The applications for this non-corrosive, high-strength aluminum chain are practically unlimited and range from use as protective barriers at parking lots, lawn and work areas and roads to use as guard rails inside municipal water and sewage treatment plants. For details, specification folder and price list, write BISON ALUMINUM CHAIN CO., DEPT. CP, 249 HERTEL AVE., BUFFALO 7, N. Y.

### Do You Know About Prostran?

**304** If street sweeping is your bailiwick, you should. For Prostran will help lower your costs per sweeping mile, make your street sweeper brooms last longer, deliver a truly clean sweep under all weather conditions. For full facts, write E. B. & A. C. WHITING CO., BURLINGTON, VT.

### Puts You On The Right Track

**305** A trackless train, which offers passenger comfort and safety and extra revenue for you through its potentially wide application in zoos, municipal parks, and recreation and tourist areas, is announced in new literature from ALLAN HERSCHELL, NORTH TONAWANDA, N. Y. The train pulls steep grades, turns in a 20-foot radius, and is economical to operate.

### 7 in 1 Mower

**306** Weed cutter, lawn mower, leaf mulcher, garden cultivator, brush saw, buck saw and elevator speed jack—that's the improved Cizek "7 in 1," which features variable ground speed chain drive and easy to adjust controls. For 4-page descriptive folder, write CIZEK MFG. & DISTRIBUTING CO., INC., CLUTIER, IA.

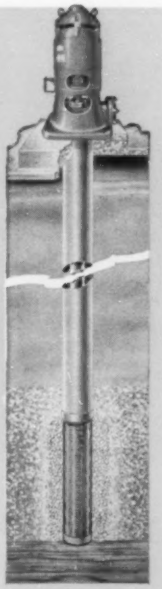
### Tailgate Asphalt Mixer

**307** An illustrated brochure describes how this Heat-A-Mix unit works, tells why you need it, and explains how it eases the labor of heating and re-mixing stockpiled asphalt. Write WYLIE MFG. CO., INC., P. O. BOX 7086, OKLAHOMA CITY 12, OKLA.

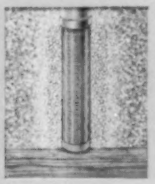
### Fogs Insects to Death

**308** A compact and dependable thermal aerosol fogging machine, used in association with a storage battery, formulation supply tank, LP-gas tanks and water tank, provides a highly effective insecticidal fog for insect control. See Fog is described in a 4-page illustrated bulletin, available from THE SEEBURG CORP., 1500 N. DAYTON ST., CHICAGO 22, ILL.

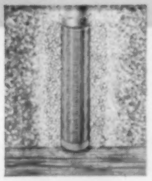
***(See page 70 for more Bulletins)***



**Why take a chance? Inferior, inexpensive strainers can only mean costly, time consuming replacement. When you install a Cook Well Strainer you are guaranteed years of superior service attested by thousands of installations that are still producing water at their original G.P.M. The exclusive design of Cook Strainers permits the most direct and unobstructed water way from the water bearing formation into the well. The V-shaped slot allows for maximum development which is accomplished by the removal of silt, alluvium, clay and fine sand from around the outside of the strainer. This provides a natural filter of coarser and more uniform sand and gravel.**



**sustained performance**
**YEAR after YEAR with**
**a strainer by COOK**



Investigate all the advantages of Cook Strainers. They are available in Red Brass, Silicone Bronze, Armco Iron, or Stainless Steel; in as many different slot sizes as required. Eight to twenty-four hours delivery often possible by telephoning Cincinnati HUmboldt 1-8800.

**COOK WELL STRAINER CO.**
6330 Glenway Avenue • Cincinnati 11, Ohio
WORLD'S LEADING NAME IN WELL STRAINERS

## CATALOGS for Improved Municipal Services

Write to address given or circle corresponding number on free post card on page 63.

### Butterfly Valve Booklet

309 Engineers working with valves will want a copy of 38-page *Bulletin* 10LX, for it tells just about everything about the Monoflange Mark II, a new rubber seat butterfly valve that provides a completely drop tight shutoff at 150 psi and is ideal for throttling service. Available from HENRY PRATT CO., 319 W. VAN BUREN ST., CHICAGO 7, ILL.

### Traffic Survey Aid

310 A special bulletin on compilation of traffic statistics and literature on a new all-metal multiple-tally that boasts nine exclusive features that speed manual tabulation and insure accuracy when making traffic surveys can be obtained by writing to DEPT. MI-60, THE DENOMINATOR CO., 261 BROADWAY, NEW YORK 7, N. Y.

### Speedier Snow Removal at Lower Cost

311 . . . is achieved more easily when snow plows are controlled from inside the cab. Concrete evidence of this is presented in the illustrated folder on power hydraulic controls for snow plows, which is offered by MONARCH ROAD MACHINERY CO., 1331 MICHIGAN ST., N. E., GRAND RAPIDS 3, MICH.

### Here's a New Aeration System

312 *Bulletin* No. 7317 discusses a different approach to activated sludge aeration, one that offers both higher oxygenation capacities and high circulating velocities that promote maximum mixing conditions. DORR-OLIVER INC., STAMFORD, CONN., calls it the D-O INKA system and reports oxygen transfer rates from 10 ppm to 150 ppm per hour and higher are feasible.

### Heavy-Duty Corrosion Protection

313 A 4-page brochure on Corrotrol gives some helpful answers on corrosion control for sewage and industrial waste treatment plants and collecting systems and water works, pumping stations, treatment plants and distribution systems. For a copy, write CORROSION CONTROL CO., 33 W. 42ND ST., NEW YORK 36, N. Y.

### Reduces Dewatering Costs

314 A 4-page technical bulletin, R. P. 100, gives complete details on the Roto-Plug sludge concentrator, which provides a simple, efficient and economical means for concentrating sewage sludge to over 25% solids. For a copy, write NICHOLS ENGINEERING & RESEARCH CORP.

### Your Grass Will Always Be Greener

315 Planning a lawn or turf irrigation project? Need a little advice? A detailed plan? You'll find this catalog presents a wide variety of equipment to solve design problems on any size project. For specifications and performance data on a complete line of lawn irrigation equipment and accessories, including automatic sprinkler controls, write TEXAS LAWN SPRINKLER CO., INC., P. O. BOX 35423, DALLAS, TEXAS.

### Carryable Construction Equipment

316 Centrifugal and diaphragm pumps, chain saws, electric generators, blowers, vibrators, electric builders, hammers, rock drills and paving breakers —a complete line of carryable construction equipment — presented in literature available from HOMELITE, A DIVISION OF TEXTRON, INC., 103 RIVERDALE AVE., PORT CHESTER, N. Y.

### Look Before You Buy Earthmoving Equipment

317 In this 8-page brochure (Form DO20), CATERPILLAR TRACTOR CO., ADVERTISING DIVISION, PEORIA, ILL., tells how accurate maintenance and repair records can improve where and how money is being spent on earth moving equipment and offers free copies of cost record books. Cat equipment is also discussed and shown working in towns, cities and counties.

### Rotary Air Compressor

318 This unit will deliver all the cool air needed to operate an 80-pound breaker at top efficiency. It's smooth operating and starts easily in coldest weather because there are no pistons to drag. Catalog literature gives full details on the "75;" write THE JAEGAR MACHINE CO., 505 DUBLIN AVE., COLUMBUS 16, OHIO.

### Batteries for Stationery Service

319 Those responsible for emergency lighting and power will be among those interested in this new, 12-page illustrated brochure, published by GOULD-NATIONAL BATTERIES, INC., TRENTON 7, N. J., on Gould Plante batteries in Plastrite jars for stationary service. Discharge characteristics are given, as are engineering specifications and dimensional data on battery racks.

***(See page 74 for more Bulletins)***

the Old Shell Game

M & H does not believe that a business transaction should be a gamble, with either buyer or seller looking out for himself at his own risk. From the beginning of its career, the M & H Management has realized that a customer should become a friend. A customer should really be a silent partner—and not always silent, either, because his honest advice and opinion are extremely valuable.

So there has never been a place in the M & H organization for the old legal phrase of commerce i.e., "Caveat emptor" (Let the buyer beware). Instead, the confidence and trust of a customer always has been considered a Company asset of vital importance. A policy has been strictly followed to the effect that any transaction involving seller and buyer must satisfy both. Therefore, M & H Production Department always makes the best product it knows how—and the M & H Sales Department sees that a fair trade is made with the customer who buys it. The Company will certify its product is made in accordance with specifications, and will give the service for which it is designed.

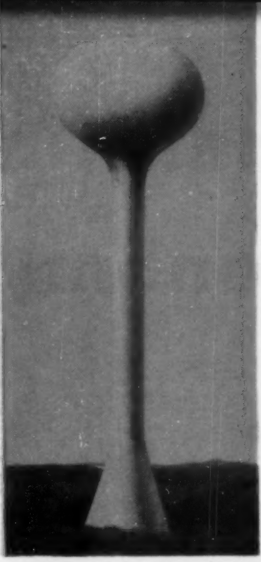
In effect, M & H and a customer voluntarily become unofficial partners responsible for the service rendered by M & H products in use. It is a relationship of which the Company is very proud.

(No. 4 of a Series)

ANNISTON, ALA.

M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA

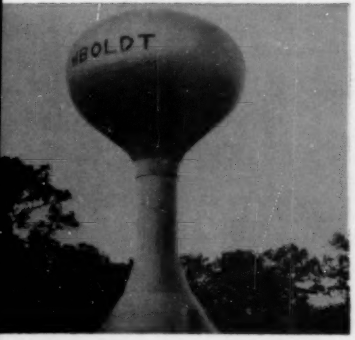
SUBSIDIARY OF W WALWORTH



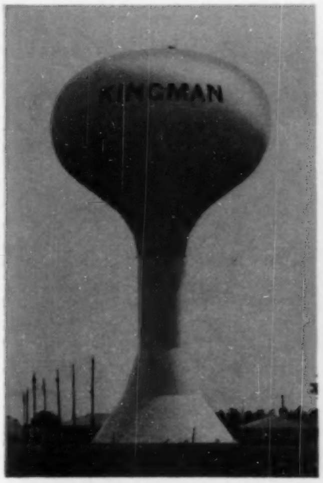
Lansing, Michigan. 250,000 gallons

When the look of tomorrow is wanted in the moderate capacity range . . .

## CHOOSE THE PEDESTAL SPHEROID BY PITTSBURGH-DES MOINES



**Humboldt, Iowa. 500,000 gallons**



Kingman, Kansas. 500,000 gallons

In the evolution of elevated water storage, the PDM Pedestal Spheroid speaks for tomorrow here and now! This smooth and shapely design draws instant attention wherever on view—covers the medium capacity range of 200,000 to 750,000 gallons—and provides the modern-minded community with old-fashioned economy in purchase cost. To find how the PDM Pedestal Spheroid can fit your water service picture, just call in one of our sales engineers. Address our nearest office, without obligation of any kind.

PDM
ELEVATED STEEL TANKS

**Pittsburgh-Des Moines Steel Company**

Plants at PITTSBURGH, WARREN, BRISTOL, PA. • BALTIMORE • BIRMINGHAM • DES MOINES
PROVO, UTAH • CASPER, WYO. • SANTA CLARA, FRESNO, STOCKTON, CALIF.

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| DES MOINES (8) | 1015 Tuttle Street | JACKSONVILLE | 4066 Ferrarra St. |
| PROVO, UTAH | P. O. Box 310 | DALLAS (1) | Suite 1703, Southland Center |
| SANTA CLARA, CALIF. | P. O. Box 329 | DENVER (2) | 323 Railway Exchange Bldg. |
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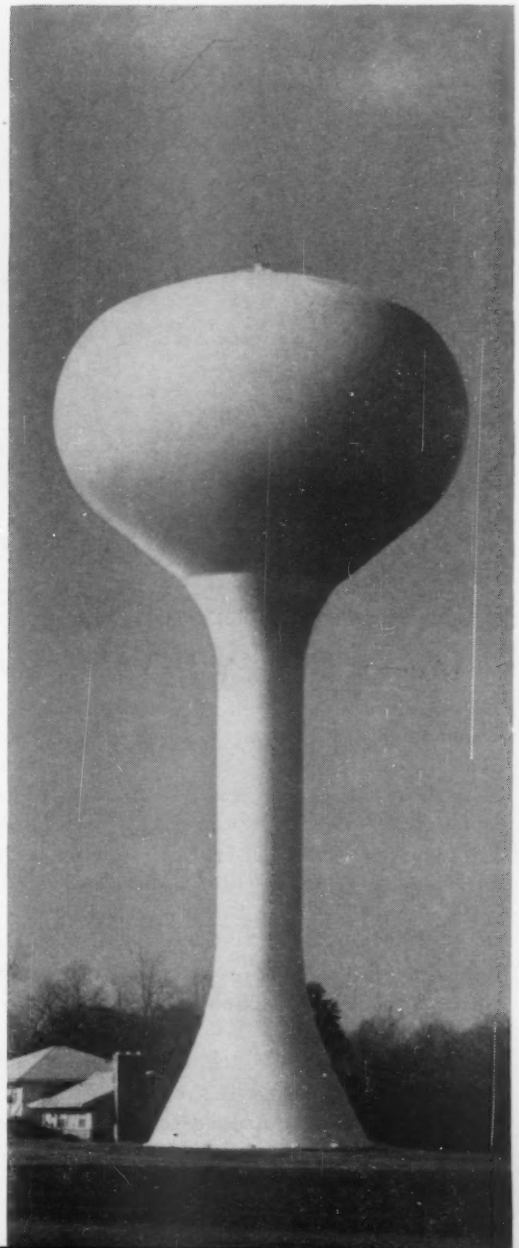
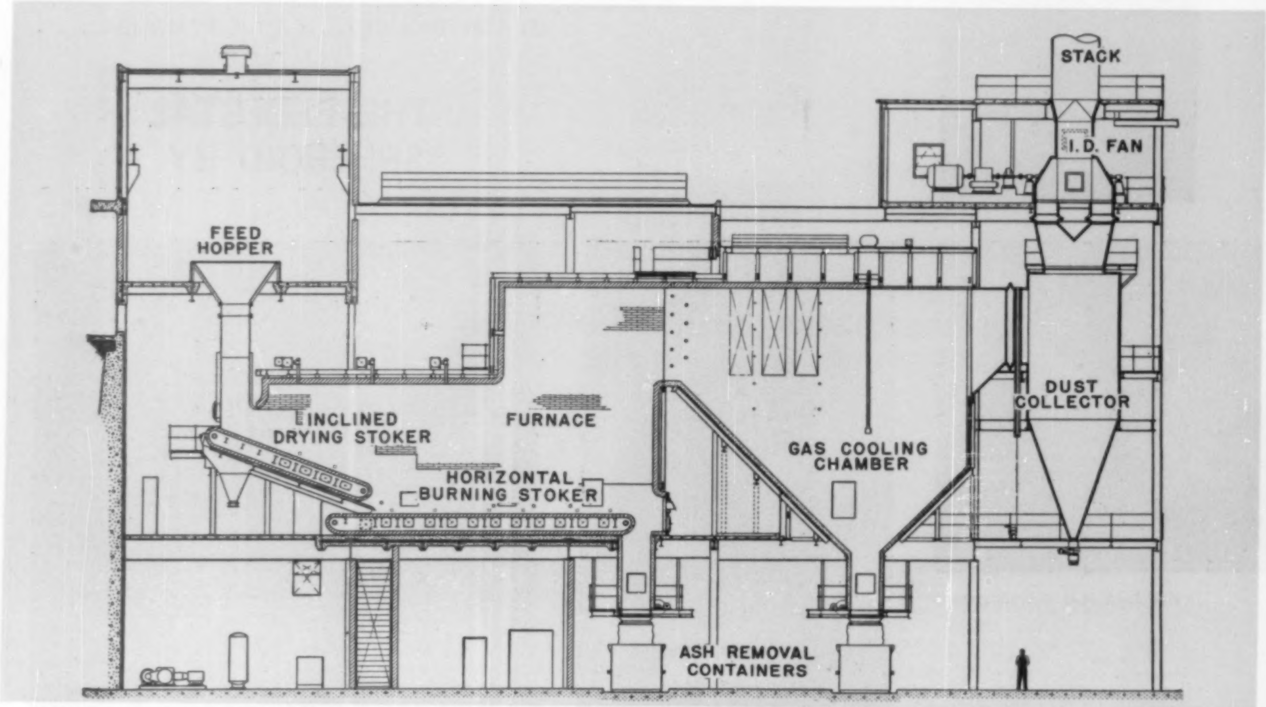


Annapolis, Maryland. 500,000 gallons

# Refuse disposal plant in emphasizes economy



## *Recent tests prove that C-E Incinerator Stokers are perfect for the job*

Philadelphia's ultra-modern Northwest Incinerator Plant – recently placed in service – contains two C-E Incinerator Stoker units designed to burn 600 tons of refuse daily. "Continuous processing" – inherent in C-E Traveling Grate Stokers – enables the entire operation to be automatic, efficient, quick and clean.

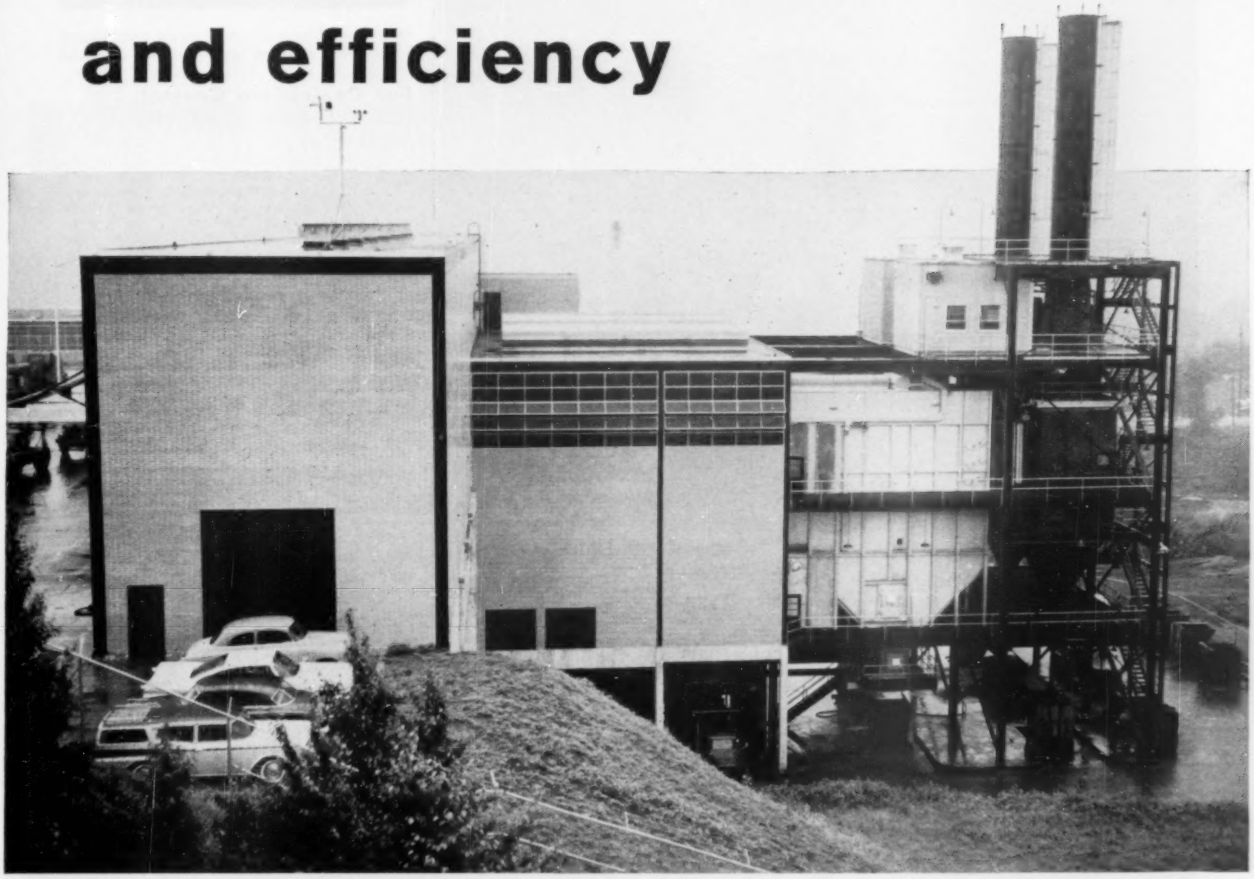
Extensive tests at the Northwest plant have shown the ability of the C-E units to operate efficiently through a wide load-and-overload range, and to reduce all refuse to a sterile ash free from unburned materials and bothersome odors.

These results indicate that the selection of Combustion Incinerator Stokers is simply a matter of both sound engineering and sound economics. Every C-E system now in operation has service-proved its labor saving and reliability attributes. From the time the refuse is deposited into the self-sealing, non-clogging hopper, until the incinerated residue is hauled away. only minimum operating attention is required.

The residue, as it is discharged from the C-E Incinerator Stoker, provides a sanitary, inoffensive fill for the reclamation of waste land. If desired, a Waste Heat Boiler may be added to the system to provide steam for power or process.

You and your consultants are invited to contact your nearest C-E office for more information about using the C-E Incinerator Stoker as a solution to your refuse disposal problem.

# Philadelphia and efficiency



The Northwest Incinerator Plant. A cross-sectional view (from the same vantage point) is shown on the opposite page. Day & Zimmerman, Inc., *Consulting Engineers.* Carroll, Grisdale and Van Alen, *Associate Architects.* Tynan Incinerator Co., *Incinerator Contractor.* David M. Smallwood, *Commissioner;* Abraham Michaels, *Deputy Commisioner and Chief Sanitation Engineer,* Department of Streets, City of Philadelphia.

## HIGHLIGHTS OF C-E DESIGN

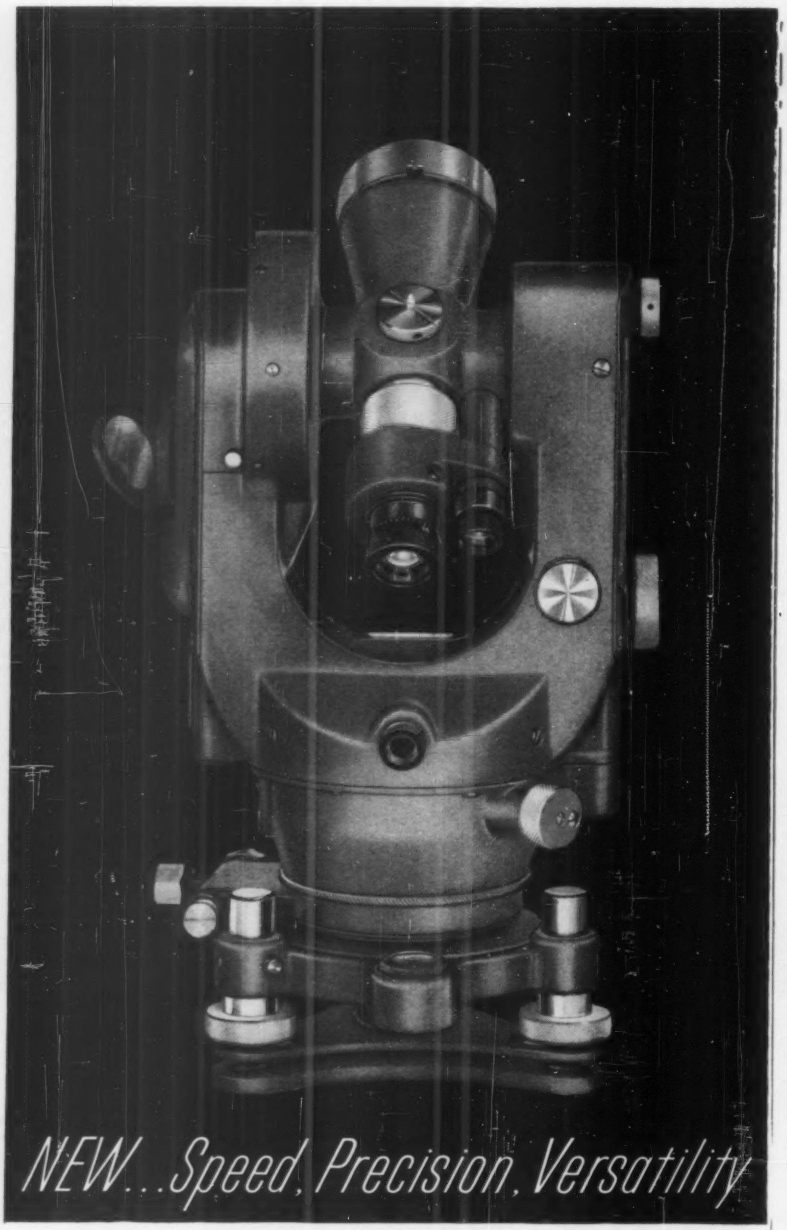
- Requires less labor than any other burning method.
- Easy to operate—no heavy stoking or cleaning of fires.
- Assures maximum availability.
- Large hopper and chute provide sealed, continuous supply of refuse.
- Continuous, automatic burning of fuel on grate from front to rear.
- Zone control of air to fuel bed assures maximum combustion efficency.
- Ratio of overfire and undergrate air easily controlled by use of dampers.
- Continuous discharge of residue from moving grate surface.
- Easily replaceable grate elements.
- Special heat-resisting iron—most suitable material—used for grate surface.
- Wide keys over driving chains prevent fouling.
- Steel driving chains, below grate and removed from heat, take all tension.
- Take-up mechanism easily accessible at front.
- Applicable to largest incinerators.
- Provides most economical method of disposal.

**COMBUSTION C-E ENGINEERING**

Combustion Engineering Building • 200 Madison Avenue, New York 16, N. Y.
*Canada:* Combustion Engineering-Superheater Ltd.

C-288

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE



**WILD T-1A OPTICAL REPEATING TRANSIT**

All the ruggedness, simplicity, and trouble-free performance of the world renowned T-1...plus the convenience and extra speed of automatic vertical collimation setting.

Vertical angles can be read immediately after set-up. No need to center vertical circle level...no cleaning or maintaining moving parts.

Highway, mining, or any other surveying project, day or underground, becomes routine with the Wild T-1A.

Upper and lower motions for setting on zero and for repeating. Built-in optical plummet.

Write for Wild Booklet T-1A.

In Canada: Wild of Canada Ltd.,
157 Maclaren St., Ottawa, Ontario

**WILD®**
**HEERBRUGG**
**INSTRUMENTS, INC.**
Main at Covert St. • Port Washington, N.Y. • POrt Washington 7-4843
FULL FACTORY SERVICES

# YOU NEED *These catalogs*

Write to address given or circle corresponding number on free post card on page 63.

## For Centralized Control and Dispatch of Mobile Equipment

**320** An illustrated brochure describes a communications command center designed, fabricated and engineered to provide maximum efficiency for command radio communications by police and fire departments, utilities and transportation companies. Available from WESTREX RECORDING EQUIPMENT DEPT., 6601 ROMAINE ST., HOLLYWOOD 38, CALIF.

## Steel Water Storage Tanks of Medium Capacity

**321** If you've need of a water storage facility in the 200,000 to 750,000 gallon range, and want it to be attractive and economical as well as functional, you'll want to find out how the Pedestal Spheroid can fit into your water service picture. Write PITTSBURGH-DES MOINES STEEL CO., NEVILLE ISLAND, PITTSBURGH 25, PA.

## Safer Bridge Flooring

**322** The company that makes grating for every municipal use announces availability of a new metal grating for bridge flooring, which puts an end to car weaving. "CK" Decking has been successfully tested for four years; for complete information, write IRVING SUBWAY GRATING CO., INC., 5030 27TH ST., LONG ISLAND CITY 1, N. Y.

## Smoother Traffic Control

**323** . . . is achieved with less effort with Safe-T-Cone traffic guides on the job, whether used for traffic channeling, line painting, emergency blockades, or other applications where they must "adapt". Features, models, uses are all described in literature available from RADIATOR SPECIALTY CO., CHARLOTTE, N. C.

## Prestressed Concrete Tanks

**324** *Bulletin* T-22 will be of interest to anyone considering prestressed concrete tanks for storage service. It discusses these storage units in terms of overall cost to community, points out that 75% of construction costs are spent locally, considers maintenance and other pertinent factors. Available from THE PRELOAD CO., INC., 355 LEXINGTON AVE., NEW YORK 17, N. Y.

## 168-Pages of Construction Castings

**325** This new and fully illustrated Manual covers manhole covers and steps, flap valves, drainage grates, building castings, catch basin inlets and traps and many other construction and maintenance castings. For your copy, write NEENAH FOUNDRY CO., NEENAH, WIS.

## Swimming Pool Equipment Supply Catalog

**326** This illustrated 32-page catalog describes over 500 items of swimming pool equipment and supplies. It includes pool heaters, tubular diving stands, concrete diving towers, visual vacuum filters, and a new family of water conditioners in addition to normal pool equipment and accessories. Write GENERAL SWIMMING POOL PRODUCTS, CATALOG DIVISION, P. O. BOX 18, EVANSTON, ILL.

*(See page 82 for more Bulletins)*

GIANT ACID HOSE

# Keeping water soft during a tough plant-expansion job

The chemical treatment building of the Kansas City Water Works is getting a new addition. This big job will take two years, during which time the building contractor is using a simple and economical means for conveying water-softening chemicals to the water supply.

He uses chemically-resistant U.S. Giant® Acid Hose, furnished with stainless-steel fittings.

The men find it extremely flexible and easy to handle, resistant to abrasion, impact and weather. It remains unharmed by its highly corrosive cargo—hot lime slurry, ferric sulphate, alum solution, soda ash.

U.S. Giant Acid Hose is made for either suction or discharge service, replacing metal pipe because it handles highly corrosive solutions so well.

• • •

**When you think of rubber, think of your "U.S." Distributor. He's your best on-the-spot source of technical aid, quick delivery and quality industrial rubber products.**

**Mechanical Goods Division**

**United States Rubber**

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

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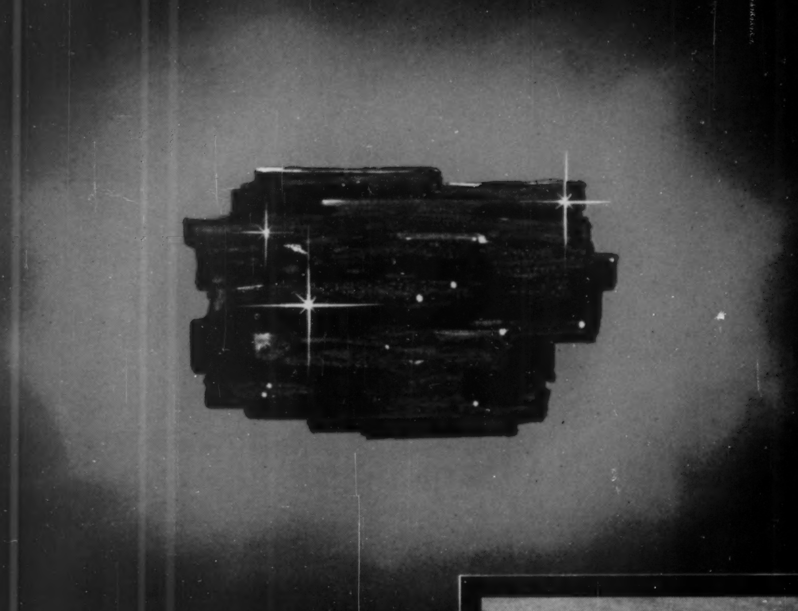
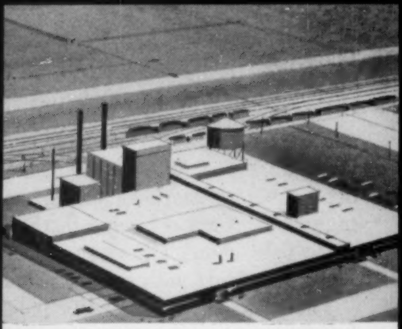




**Dependable coal** provides heat, power and process steam for thousands of modern industrial and commercial plants. Newly developed coal handling and combustion equipment has enhanced the advantages of coal.

# ER COAL!

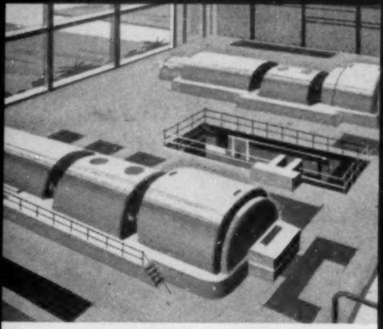
## COAL IS RELIABLE for the constant production of steam for process and power

For over a century and a half, since the harnessing of steam, industrial America has been dependent upon coal for conversion to dynamic energy. Today, coal is still preferred by informed users in major industrial areas who count on its economy, efficiency and reliability.

Reliable—because coal's tremendous reserves assure abundant supply for *centuries, not decades.* More efficient and economical than ever before—benefits of constantly new technological developments in both the mining and use of coal. Reliability, too, in transportation of coal by Chesapeake & Ohio—and at low cost.

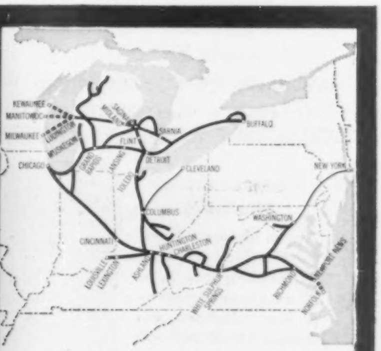
It will pay anyone faced with the problem of modernization to *rediscover coal.* Today or centuries from now there will be ample supply to outlive the life span of the finest combustion equipment.

**Chesapeake and Ohio Railway**
Terminal Tower • Cleveland 1, Ohio
*Outstandability in Transportation*



**Electric Utilities** depend upon the constancy of coal because electric power cannot be carried in inventory. It must be made when needed and used the instant it is made. Over 70% of the fuel consumed by utilities is coal.

**C&O Fuel Service Engineers** offer free consultation in C&O's market areas on any problem of combustion, application, equipment or plant arrangement. Write to: R. C. Riedinger, General Coal Traffic Manager, at the address above.


KEWAUNEE
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MIDLAND
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LOUISVILLE
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WHITE SULPHUR SPRINGS
RICHMOND
NEWPORT NEWS
NORFOLK

**The Chessie Line,** a 5,100-mile modern transportation plant, directly serves over 300 mines in America's richest bituminous coal reservoir with the finest fleet of 68,000 coal cars. Specify C&O routing for dependable delivery.

CHESSIE SERVES THE COAL BIN OF THE WORLD

IDEAL
solution for . . .

Three low-speed engine-type units installed in new Mill Creek sewage treatment plant.

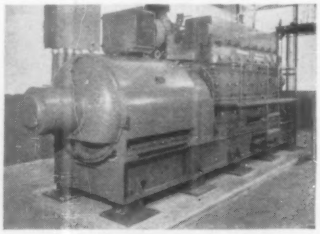
## ideal performance at mill creek

Three IDEAL 1350 kw generators, coupled to 1910 hp diesels, turn at 327 rpm to provide power for pumping, comminution, flocculation, digestion and building lighting at Cincinnati's new Mill Creek Sewage Works. A fourth unit, to be installed prior to completion of the facility, will provide a total capacity of 120 million GPD. It's another example of IDEAL equipment selected for outstanding municipal power development projects where dependable power performance is important.

On the job in similar installations across the land and around the world, IDEAL low and high speed generators in ratings from 10 to 10,000 kw are designed and engineered to meet your exact requirements. You can depend on IDEAL's reputation for quality equipment earned in over a half-century of creative electrical engineering. When your specs say "IDEAL", it's the finest!

EMERGENCY STAND-BY

**Typical high-speed unit installed on a diesel generating set in a Midwestern metropolitan telephone exchange. 50, 60 and 400 cycle, 10 to 4000 kw for any requirement.**



**The IDEAL ELECTRIC & MANUFACTURING CO.**

344 East First St. Mansfield, Ohio

SINCE 1903, AMERICA'S FINEST MOTORS, GENERATORS, MOTOR-GENERATOR SETS, SWITCHBOARDS AND CONTROLS

## For Year-Around Efficiency Graders Do DOUBLE-DUTY with

**FRINK SNO-PLOWS**
REG. U. S. PAT. OFF.

Now, **another** cost-saving FRINK Sno-Plow combination! Uniting earth-moving with snow-removing, a grader equipped with a FRINK Sno-Plow gives year-around utility. A simple installation readies many graders for efficient winter snow-fighting.

The heavy-duty V-Type Sno-Plow with eight- or nine-foot cutting edge is attached in the same way as on trucks, with complete full-power hydraulic control. The driver has at his fingertips the standard FRINK quality of rugged, dependable operation.

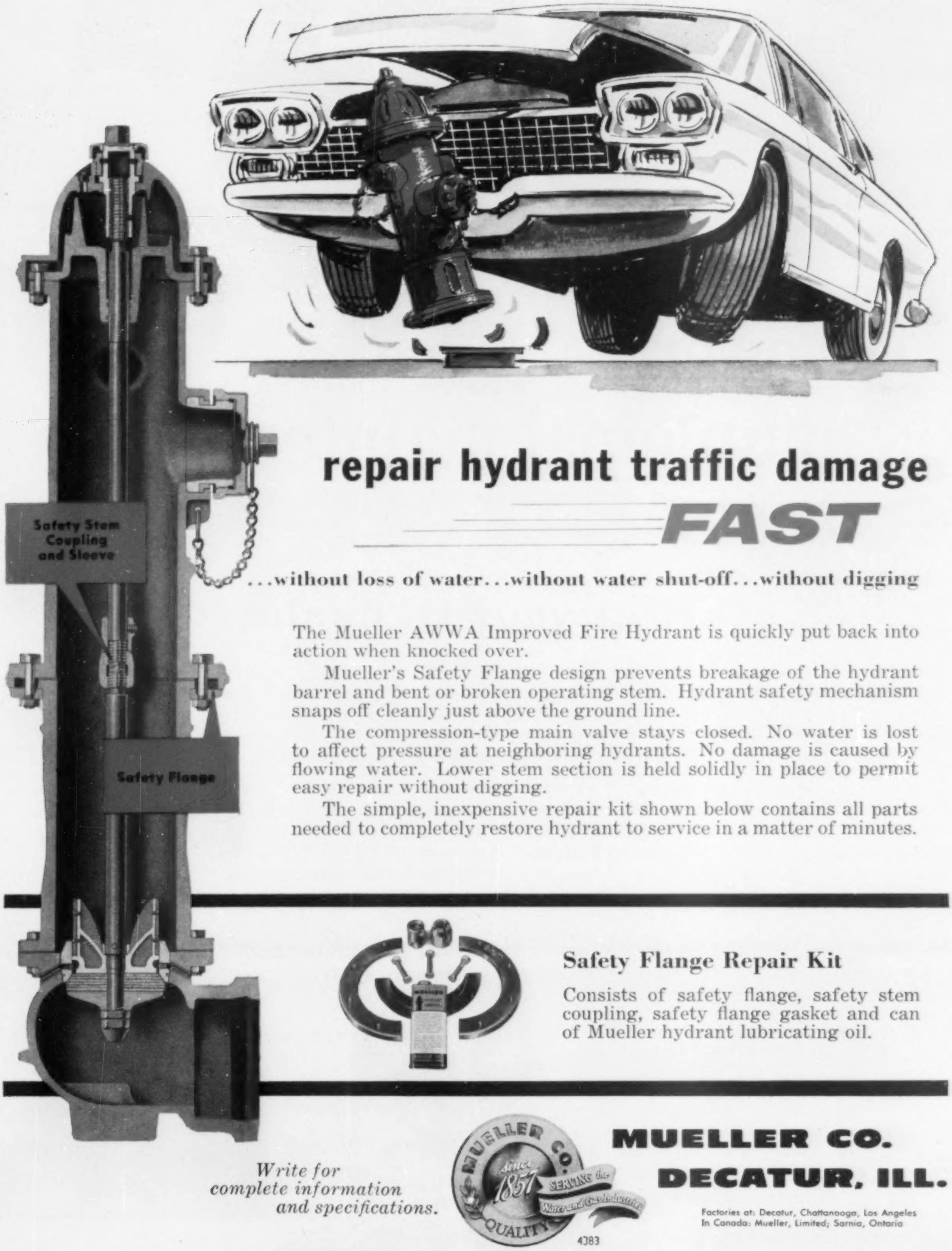
For full details on making year-around cost-saving use of your graders with extra-duty FRINK Sno-Plows, write: Dept. AC-96

- V-Type
- Roll-Over
- One-Way
- Reversible Trip
- Leveling Wings

**FRINK SNO-PLOWS**
REG. U. S. PAT. OFF.

**FRINK Sno-Plows, Inc.**
**Clayton, 1000 Islands, N. Y.**

**Eastern Steel Products, Co.**
**Preston, Ontario, Canada**


Safety Stem Coupling and Sleeve
Safety Flange

# repair hydrant traffic damage FAST

...without loss of water...without water shut-off...without digging

The Mueller AWWA Improved Fire Hydrant is quickly put back into action when knocked over.

Mueller's Safety Flange design prevents breakage of the hydrant barrel and bent or broken operating stem. Hydrant safety mechanism snaps off cleanly just above the ground line.

The compression-type main valve stays closed. No water is lost to affect pressure at neighboring hydrants. No damage is caused by flowing water. Lower stem section is held solidly in place to permit easy repair without digging.

The simple, inexpensive repair kit shown below contains all parts needed to completely restore hydrant to service in a matter of minutes.

**Safety Flange Repair Kit**

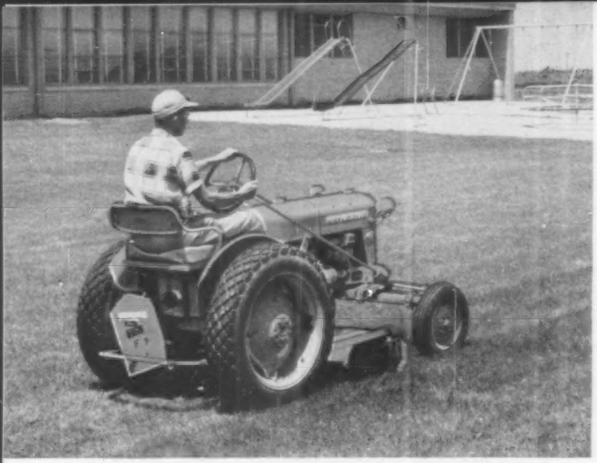
Consists of safety flange, safety stem coupling, safety flange gasket and can of Mueller hydrant lubricating oil.

*Write for complete information and specifications.*

**MUELLER CO.**
**DECATUR, ILL.**

Factories at: Decatur, Chattanooga, Los Angeles
In Canada: Mueller, Limited; Sarnia, Ontario

4383



**For top-flight mowing performance** at rock-bottom cost, it's the 13.4 hp* International Cub® Lo-Boy® equipped with International Danco center-mounted rotary mower.

# Lower municipal maintenance costs

## ...start at your IH dealer!

From mowing neighborhood playgrounds, to heavy trenching for municipal utilities, your tractor and equipment budget goes farther at your IH tractor dealer. You save three ways:

**First,** from eight sizes of International tractors, you can select a power size to *exactly* match *each* job requirement. Only your IH dealer offers such a wide power range, plus a full line of matched equipment for each tractor size.

**Second,** no matter what power size International you select, IH built-in brawn assures greater strength plus traction for work-speeding performance and low maintenance.

**Third,** you get greatest possible protection against downtime! One of 5,000 IH dealers is near you. His local facilities, in turn, are backed by a nationwide network of IH parts depots—another plus when you specify International!

**Maximum flywheel hp at standard sea level conditions.*

**47 hp* International T-340 crawler with Drott 4-in-1 Skid Shovel,** most versatile of all earthmovers, pays off in winter use.

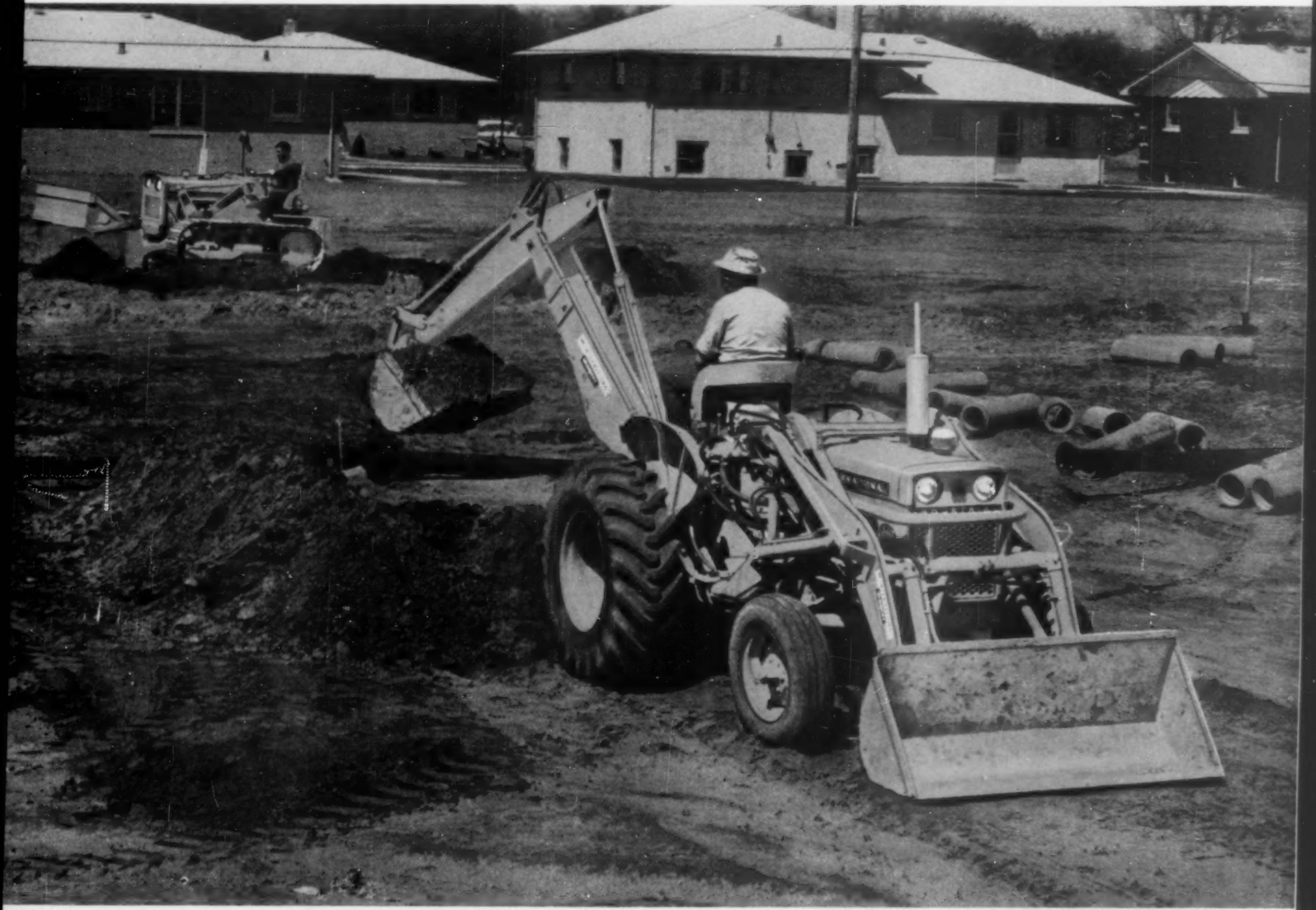
SHELL
SHELL
AVIATION PROD

◀ **40 hp* International® 240** leads its power class in brawn and balanced weight for greater push-pull power. Equipped with hydraulically controlled snow blade, the 240 speeds heavy snow-clearing operations.

**For low-cost snow clearance** around municipal buildings, it's an International Cub Lo-Boy and hydraulically-controlled 54-inch angle blade. ▶

**Speed all utilities maintenance operations** and new construction with this low-cost fast-working rig—47 hp* International 340 with International Wagner loader and backhoe.

▼



INTERNATIONAL
Industrial Tractors and matched equipment

**Equipment-planning aid for 1961!** New catalog, *International Tractors and Matched Equipment*, gives key specs, helps you rate your 1961 job requirements against the most efficient International power size. Ask your IH dealer for a copy, or write International Harvester Company, Dept. AC-9, P. O. Box 7333, Chicago 80, Illinois.

PARTS and SERVICE EVERYWHERE
IH
● IH Parts Depots
• Dot represents 10 dealers
5,000 dealers backed by 12 parts depots

**INTERNATIONAL HARVESTER**

CASE HISTORIES
PROVE

**DIXON** PAINTS LAST LONGER

This water tank shown is in Yonkers, New York and was painted over 15 years ago with Dixon paints. It's still getting good protection from sun, snow, sleet and rain!

This is not an unusual record for Dixon paints which, when properly applied, double normal paint life. This is proven out by Dixon customer records dating back for over 60 years. Cut your maintenance costs and give your water tank longer life with Dixon paint.

DIXON SILICA-GRAPHITE PAINTS FOR WATER TANK INTERIORS

These paints, which will not add odor, taste or color to the water, give maximum protection to the interior of your tank. When the tank expands and contracts the paint will not flake or crack because the interior paints, like the exterior paints, contain flake Silica-Graphite.

*DIXON PROTECTS BRIDGES TOO! New Jersey's famous Pulaski Skyway was painted with Dixon Paint in 1932 and didn't need repainting until 1946! This is despite heavy industrial fumes, salt air and extreme weather conditions. Dixon can offer more actual cases of long lasting paint jobs than any other paint manufacturer*

SEND COUPON TODAY FOR INFORMATION
THAT WILL SAVE YOU MONEY!

**DIXON**

JOSEPH DIXON CRUCIBLE CO. Jersey City 3, N. J.
*Paint Products Division, Dept.* AC-9
Gentlemen:

☐ Please send free sample *contract forms* and specifications which will enable me to get a quality paint job for less money.
☐ Please send me a FREE copy of brochure "ENGINEERED PROTECTIVE MAINTENANCE for the Water Industry" (V-90)

Name ........................ Title ........................
Organization ........................
Address ........................
City ........................ Zone ............ State ........................

## FREE catalogs

Write to address given or circle corresponding number on free post card on page 63.

### New Street and Highway Standards Catalog

327 Basically a working engineering brochure, this 16-page catalog with over 20 drawings, covers complete data on various P&K lighting standards. Details include luminaire specifications, arms, bases, anchorage, etc. The entire catalog is cross-indexed. For a copy of *Catalog* ALS-5, write PFAFF AND KENDALL, 84 FOUNDRY ST., NEWARK, N. J.

### Water Service Products

328 Curb stops, tapping machines, corporation stops—just about everything in water works brass goods is to be found in the full line catalog from HAYS MFG. CO., GENERAL PRODUCTS DIV., ERIE, PA.

### Auger-Feed Ice Control Spreader

329 Here's a heavy-duty spreader that installs on any dump truck in just 15 minutes and lays a smooth, even spread of material in widths from 8 to 40 feet in any desired thickness. A catalog and case history reports explain how it can cut labor, time and equipment costs to the bone. Write FOX RIVER TRACTOR CO., ROAD MACHINERY DIVISION, DEPT. 15, 1020 N. RANKIN ST., APPLETON, WIS.

### 3-Wheel Rollers

330 A wealth of information on general purpose, finishing and variable weight 3-wheel rollers in sizes from 10 to 14 tons is to be found in literature available from HUBER-WARCO CO., MARION, OHIO.

### New Valve Control

331 The "G" Series valve operator by LimiTorque, which is detailed in *Bulletin* No. 7A-60, is for application on rotary plug valves of any size, but particularly those in gas pipeline service. Construction and mechanical features, schematic control diagrams, and installation and manual operation are described. Available from PHILADELPHIA GEAR CORP., KING OF PRUSSIA, PA.

### 2-Way Police Radio

332 . . . up to date in engineering, field-tested, proved in reliability and performance, and able to measure up to tough police requirements is given full coverage in literature offered by MOTOROLA COMMUNICATIONS & ELECTRONICS, INC., 4501 AUGUSTA BLVD., CHICAGO 51, ILL.

### Better Sports Lighting at Lower Cost

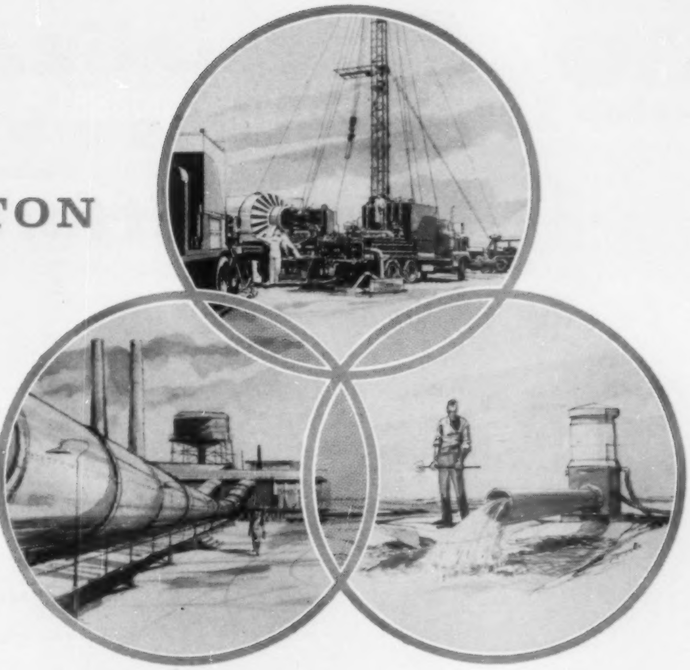
333 . . . can be achieved through use of broad-beam Wide-Lites, which eliminate "hot spots" and shadows from playing fields, operate on 460 volts, require 50% less transformer capacity, and have 7000-hour lamp life. For all the facts, write WIDE-LITE CORP., P. O. BOX 191, HOUSTON 1, TEXAS.

### Shovel, Crane, Hoe, Clamshell, Dragline

334 The versatile Lorain 50, a 25-ton, 1-yard crawler-mounted shovel crane converts easily to all. A 12-page booklet gives full information, including details of construction and photographs of the machines in action. For a copy, write ADVERTISING DEPT., THE THEW SHOVEL CO., LORAIN, OHIO.

*(See page 88 for more Bulletins)*

**DEPEND ON**
**HALLIBURTON**
**TO HELP**



# SAFEGUARD YOUR GROUND WATER SUPPLY

## ...and keep its cost low

The responsibility of water supply ... whether for domestic consumption, irrigation or industrial use ... is a trust placed with you by the people you serve.

Helping you fulfill this trust is a Halliburton service ... in the development and maintenance of top-quality well servicing tools, techniques and technology. You can depend on Halliburton for the latest, most efficient services and tools backed by an organization with over a quarter century of experience in this important field.

275 SERVICE CAMPS...READY TO SERVE YOU

**USE HALLIBURTON FOR:**

**CEMENTING** ... to help protect casing, aquifers, and minimize fluid migration.

**FRACTURING AND ACIDIZING** ... for increased yield by well stimulation.

**HYDRO-SONIC REDEVELOPMENT** ... for fast, efficient, economical clearing of plugged wells.

**FORMATION TESTING** ... for more accurate reservoir evaluation.

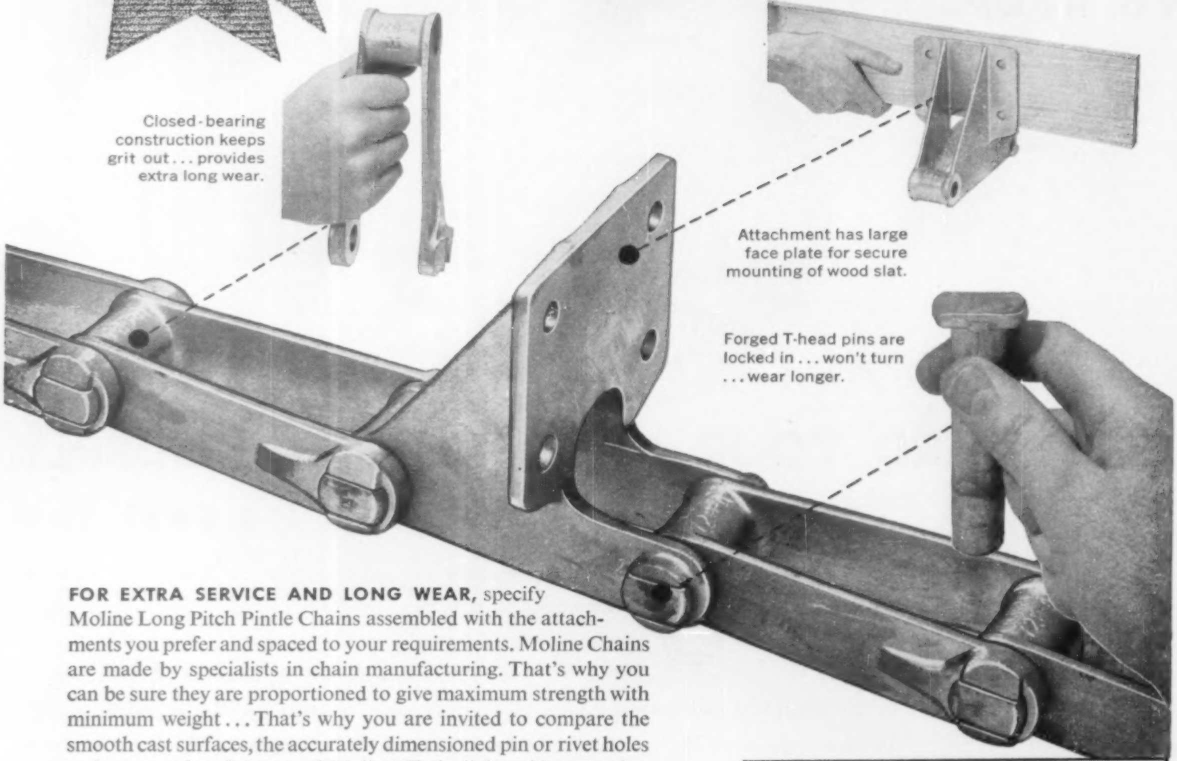
**SALES PRODUCTS AND MATERIALS** ... for a wide variety of drilling, completion and remedial operations.

**HALLIBURTON**
**COMPANY • DUNCAN, OKLAHOMA**

When selecting chain for rugged service in sewage treatment plants, remember...

60 YEARS

# Specialization makes a big difference!



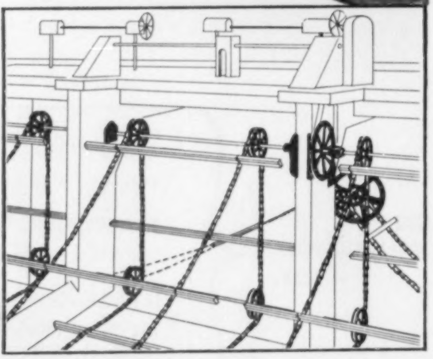
Closed-bearing construction keeps grit out... provides extra long wear.

Attachment has large face plate for secure mounting of wood slat.

Forged T-head pins are locked in... won't turn ...wear longer.

**FOR EXTRA SERVICE AND LONG WEAR,** specify Moline Long Pitch Pintle Chains assembled with the attachments you prefer and spaced to your requirements. Moline Chains are made by specialists in chain manufacturing. That's why you can be sure they are proportioned to give maximum strength with minimum weight... That's why you are invited to compare the smooth cast surfaces, the accurately dimensioned pin or rivet holes and many other features of Moline Chain links with any other make. Moline's "*triple checking*" test procedures guarantee their uniform, high quality.

Moline Chains are interchangeable with "standard" chains of other manufacture and are available in Malleable, Promal or special analysis metal having special corrosion resistance.



*For complete information and prices, phone your local Moline distributor or write direct to the factory today!*

LEADERS FOR 60 YEARS

**Moline MALLEABLE Chains**

**MOLINE MALLEABLE IRON CO.**
St. Charles, Illinois

Specializing in the Manufacture of Chains

# PREFERRED LIGHTING...

## 8 reasons why you get more light per dollar

General Electric *PREFERRED LIGHTING* is based on a simplified line of outdoor-lighting products which actual purchases show most customers prefer. Here are 8 ways *PREFERRED LIGHTING* adds up to more light per dollar on your streets and highways:

- A full selection of modern, fast-moving equipment.
- One- to four-day delivery on complete lighting systems.
- Easy application of components or complete systems.
- Reduced inventories for you . . . G.E. does the stocking.
- "Customer-preferred" lighting equipment . . . with built-in extra values throughout the line.
- More light at consistently low prices per unit.
- Continuing research to meet tomorrow's lighting needs.
- Creative customer service from General Electric Sales Engineers and Agents.

For full data on *PREFERRED LIGHTING,* see your G-E Apparatus Sales Engineer or Agent now. And write to General Electric Co., Section 460-09, Schenectady, N. Y. for the 28-page "Designer's and Buyer's Guide to *PREFERRED LIGHTING*" (GEA-7100). Outdoor Lighting Dept., Hendersonville, N. C.

General Electric's famous "Crossroads of Light," Hendersonville, N. C., lighting demonstration area for your use.

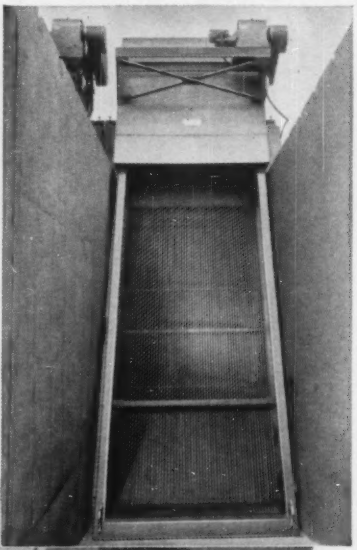
*Progress Is Our Most Important Product*

**GENERAL ELECTRIC**

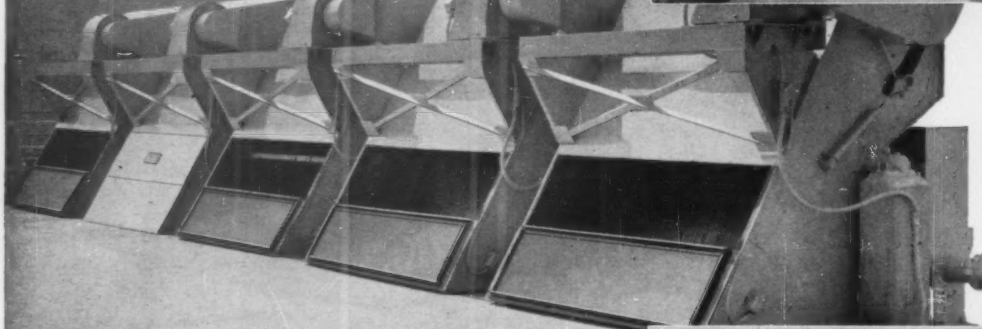
# Rex PIVOTED Bar Screens

## Provide Maximum Flexibility for Los Angeles County Plant

In the Los Angeles County Sanitation District No. 2 Sewage Treatment Plant at Harbor City, a new concept in screening operations has assured a new high in efficiency and flexibility... a new low in operating and maintenance costs... REX PIVOTED BAR SCREENS.



Close-up view showing screen suspended in channel. Note neat appearance... totally enclosed, streamlined housing and "straight-through," unobstructed flow.

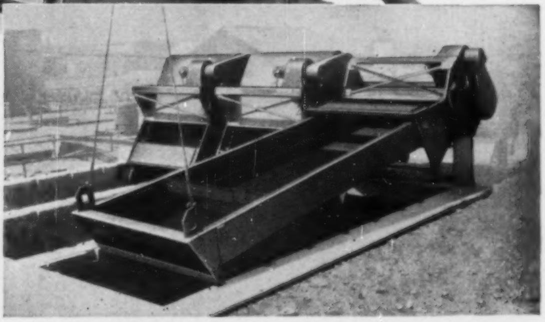


Five Rex PIVOTED Bar Screens at Los Angeles County, Harbor City Plant. Channel width, 6½ feet; channel depth, 16 feet. Two screens each handle a flow ranging from 30 to 89 m.g.d. Three screens each handle flows of 42 to 127 m.g.d.

With this advanced design, each screen is pivoted so that it can be easily swung out of the channel for inspection and servicing. No need to dewater the channel... no need to shut down operations. Screens are back in service in a hurry.

**FRONT CLEANING**... front-mounted rake is held firmly in place... provides maximum shelf for carrying capacity. Positive, complete cleaning of tops and sides of bars to their full depth. Rakes *and* teeth clean the bars. No chance for rakes to slide over, or miss, screenings. Bar rack is held firmly in place at top and bottom to maintain uniform spacing.

**MAXIMUM EFFICIENCY.** Full 60-degree inclined racks mean greater rack area exposed to the flow. Dead plate from bar rack to point of discharge eliminates spillage... no screenings on downstream side. Chain Belt Company, 4648 W. Greenfield Ave., Milwaukee 1, Wis.

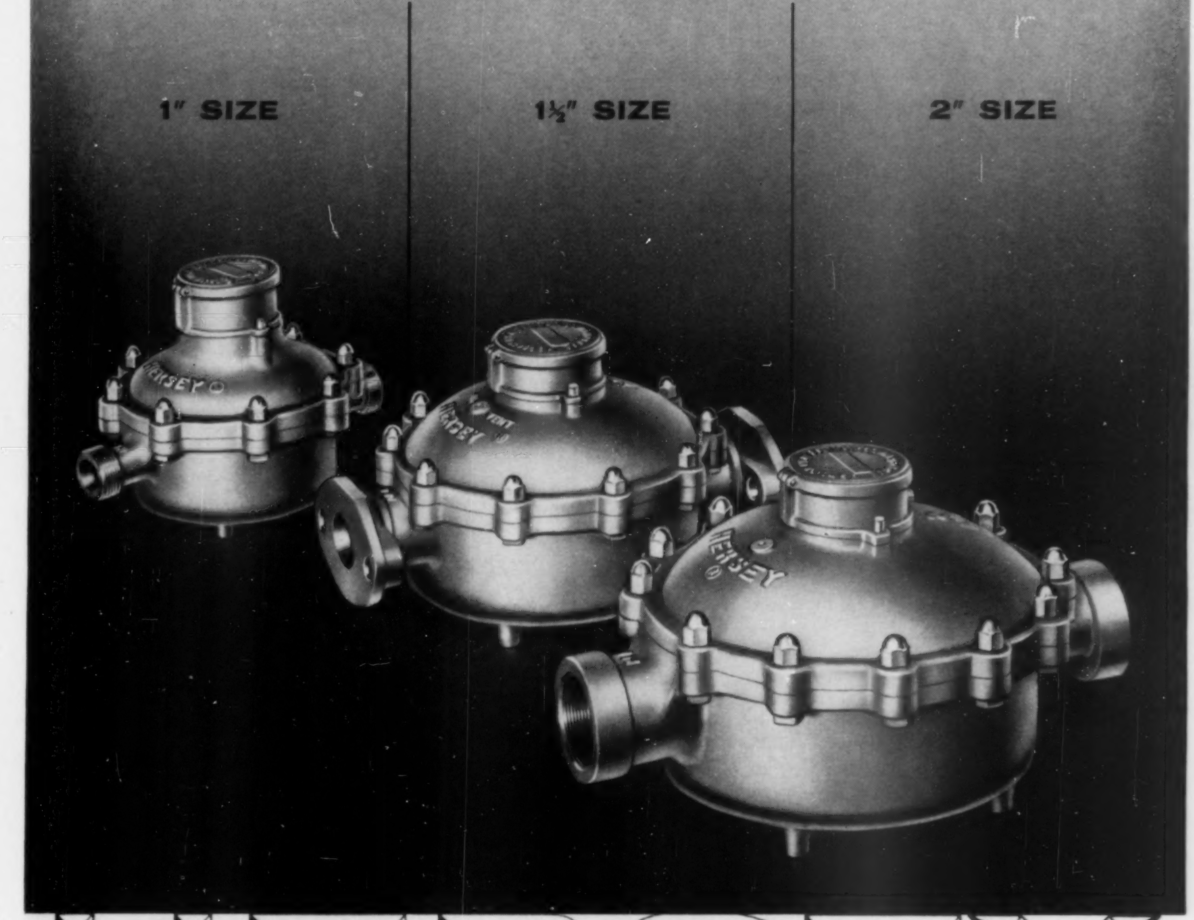


Screen pivoted out of channel. Pivot shaft rides in heavy-duty angle pillow blocks mounted on concrete pedestals.

**REX®**

**CHAIN BELT COMPANY**

*Disc Type Water Meters*
*Time Tested for High Accuracy*
*and Dependability*



HERSEY

**CONICAL DISC WATER METERS MODEL HD**

Hersey-Sparling
*Meter Company*
HERSEY PRODUCTS
DEDHAM, MASSACHUSETTS

# MONEY SAVING *catalogs*

**Write to address given or circle corresponding number on free post card on page 63.**

### Valves and Hydrants

**335** Water works men will be interested in literature on these improved products. One piece describes horizontal check valves new in design and available in sizes from 4 through 12 inches; another, a newly designed parallel seat AWWA gate valve in sizes through 12 inches; and another, an improved fire hydrant. Write EDDY VALVE CO., WATERFORD, N. Y.

### Microfilming Made Easy

**336** You'll be impressed with how easy and precise microfilming operations can be after reading this 4-color folder on the new Reliant 500 microfilmer, which in one minute flat photographs the fronts and backs of 500 items, indexes film, and even cancels or endorses when accessory endorser is used. Write RECORDAK CORP., 415 MADISON AVE., NEW YORK 17, N. Y.

### Submergible Pumps for Water Service

**337** This 4-page bulletin describes high-capacity pumps for municipal, swimming pool and sprinkler system service. Engineering and specification data, a selection chart and a cross section diagram of the pump are included. Write REDA PUMP CO., BARTLESVILIE, OKLA.

### Combats Ice-Covered Pavements

**338** A 4-page folder, *Form* A-450, illustrates and gives specifications for the K-5 S-C, a one-man, cab-controlled salt, sand and cinder that mounts on the bed of a dump truck and economically eliminates icy pavement conditions. The unit can also be used for chip spreading in summer months. Write BAUGHMAN MFG. CO., JERSEYVILLE, ILL.

### New Lighting Standards Catalog

**339** Municipal street lighting engineers, there's still time to reserve a free copy of Kerrigan's full data catalog on its new seamless, round tapered aluminum lighting standards for street, highway and area lighting. Just write KERRIGAN IRON WORKS CO., DEPT. A-9, NASHVILLE, TENN.

### Safety Products for Your Work Crews

**340** By writing to INDUSTRIAL PRODUCTS CO., 2968 N. FOURTH ST., PHILADELPHIA 33, PA., you can obtain complete information on a full line of safety equipment that will help protect your municipal and utility crews when they're on the job. Products include safety vests, hard hat covers, warning flags, safety cones, plastic barrier ropes.

### Steel Water Pipe

**341** This brochure stresses the carrying capacity of steel water pipe. Photographs illustrate features of steel water pipe with coal tar lining. Some case histories are given. For a copy, write STEEL PLATE FABRICATORS ASSOCIATION, 105 W. MADISON ST., CHICAGO 2, ILL.

### New Trees for Your Trees and Parks

**342** From a 1200-acre nursery that has approximately 360 varieties of trees and nursery stock to meet municipal landscaping needs, comes word of new trees, developed to bring new accents of color, shape and style to your streets and parks. For catalog and details, write THE COLE NURSERY CO., PAINESVILLE, OHIO.

### Small Loader with Big Loader Features

**343** There's a lot to tell about the new 77-hp TL-12, and this bulletin tells it all—it's high lift and long reach, 9,500-pound lifting capacity, 14,500-pound pry-out force, extra stability, 4,000-pound carry capacity, and all the other features that show up in better performance. Write ALLIS-CHALMERS, CONSTRUCTION EQUIPMENT DIV., MILWAUKEE 1, WIS.

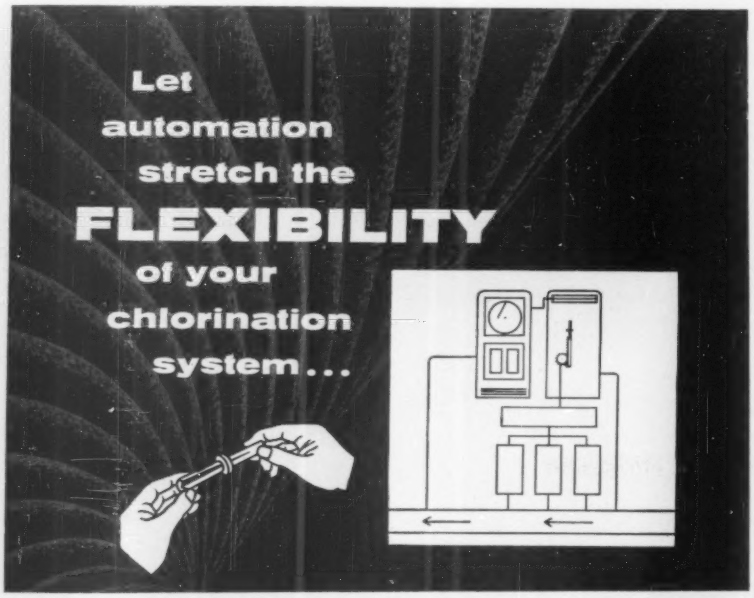
### It's the Safety Factor That Counts

**344** Have you seen the current brochure on Perma-Line? It shows latest installations, gives specifications, and explains why this thermoplastic traffic marking material goes down fast, stays put and retains its high visibility and durability. Write VEON CHEMICAL CORP., 22-09 BRIDGE PLAZA NORTH, LONG ISLAND CITY 1, N. Y.

### For Faster Repair of Underground Pipe Breaks

**345** New literature from JAMES B. CLOW, INC., 201-299 N. TALMAN AVE., CHICAGO 80, ILL., will introduce you to that company's new ductile iron split sleeve, which permits easier, quicker, permanent repair of 4-, 6-, and 8-inch transverse underground pipe breaks. The two-piece sleeves are lightweight and of glandless construction.

*(See page 90 for more Bulletins)*


Let automation stretch the FLEXIBILITY of your chlorination system . . .

**W&T** **COMPOUND-LOOP CONTROL**

Compound-loop Control by Wallace & Tiernan maintains chlorine residuals automatically—provides utmost flexibility in arrangement and process control.

Chlorinator feed rate is adjusted by two signals: one from water flow, the other from continuous, automatic residual analysis. Since feed rate is the product of these signals, Compound-loop Control gives you a range of greater than 100:1. No matter how much flow or demand changes, your system always maintains the selected residual.

Regardless of the size, type, or physical layout of your system, Compound-loop Control adapts readily. Electric, pneumatic, or variable vacuum control signals can be used. And you can install Compound-loop Control as a package or convert to it, component by component, as your system expands.

*For more information, write Dept. S-145.00*

**WALLACE & TIERNAN INCORPORATED**
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

## FOR SPEED . . . POWER . . . ECONOMY

# the MASSEY-FERGUSON 406

speaks for itself:

## "HAVE DONE . . .

# "CAN DO!"

MASSEY-FERGUSON 406
MASSEY-FERGUSON
220

**THE POWERFUL**
**MASSEY-FERGUSON BACKHOE**

**You get double utility out of the 406 when it is equipped with the popular Massey-Ferguson Backhoe. Not only can you handle all digging jobs with more ease, but you can even dig flush alongside walls, fences, buildings. This is a marvelous performer . . . that has no equal.**

## featuring INSTANT REVERSE

Here's why this Massey-Ferguson 406 Tractor Shovel says "Can DO" to so many different jobs: it's because it has an excellent record of "Have Done."

It can push tons of earth . . . fast and at low cost . . . when equipped with this matched angle dozer attachment. Or, it can load, stockpile, do clean-up work, scarify — even sweep because of the many integrated attachments available for it. This 1-cu. yd. (SAE rated) unit is equipped with Massey-Ferguson's unique Instant Reverse and Torque Converter. You change directions of travel by a simple touch of the toe — no shifting . . . no clutching . . . or levers to pull.

It provides excellent all-around visibility because the control zone is centrally located. Compare it for performance, versatility, and cost against any machine in its class. Ask your Massey-Ferguson Industrial dealer about it today!

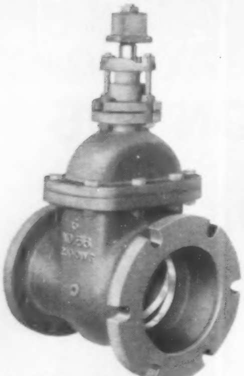
***Why Wait? — Set a Date — We'll Demonstrate!***

M F

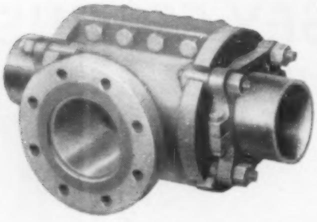
**MASSEY-FERGUSON INDUSTRIAL DIVISION**
Block 1000 South West St., Wichita 13, Kansas

*Producing Sizeable Power for the "Sensational 60's"*

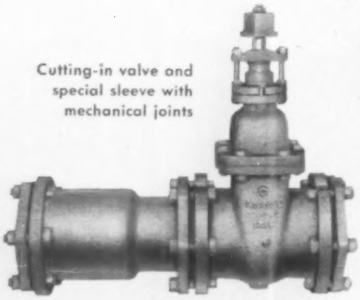
MF60-22



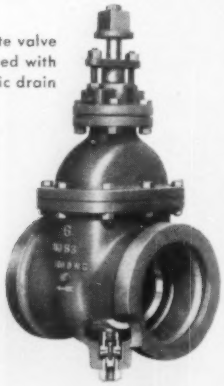
Mechanical joint
tapping valve



Mechanical joint
tapping sleeve



Cutting-in valve and
special sleeve with
mechanical joints



Darling gate valve
equipped with
automatic drain

For simplified, trouble-free **MODERNIZATION • EXPANSION • MAINTENANCE** of your present water lines

In meeting your present and future requirements you can benefit greatly by the modern design, unique features and proved performance combined in Darling valves and allied water line products. Shown here are four of the various special-purpose Darling units that are helping effectively and economically to meet growing, changing needs in communities everywhere!

For complete information on these and other time-and-money saving water line products, send for Bulletin No. 5710.

DARLING
DARLING
VALVES

**DARLING VALVE & MANUFACTURING CO.**
Williamsport 10, Pa.
*Manufactured in Canada by*
*The Canada Valve & Hydrant Co., Ltd., Brantford 7, Ontario*

## FREE catalogs

**You will find of interest**

Write to address given or circle corresponding number on free post card on page 63.

### Municipal Repair Shops

346 . . . can now get greasy gear and motor parts, water and parking meter parts, etc., clean beyond belief with new speed and efficiency. The key? Ultrasonic cleaning with the transistorized 20-KC line. Get full facts from ACOUSTICA ASSOCIATES, INC., 10400 AVIATION BLVD., LOS ANGELES 45, CALIF.

### Fencing that Gives Full Protection

347 Neither fire nor corrosion, nor severe impact nor time, seem able to lessen the strength, serviceability or protection of this steel chain link fence fabric. For test details and complete information, write CYCLONE FENCE, AMERICAN STEEL & WIRE, DEPT. 0365, 614 SUPERIOR AVE., N. W., CLEVELAND 13, OHIO.

### Planning a Marina?

348 Thinking of enlarging one? Having trouble with one? Wondering how best to apply your funds? Competent assistance is available from specialists in the field of marina design, engineering, construction supervision and management consultation. Write MARINAS UNLIMITED, 832 W. LAFAYETTE ST., EASTON, PA.

### New Biller

349 The IBM 632 electronic typing calculator consists of an electric typewriter, 10-key companion keyboard and arithmetic unit. It's used for billing. A new posting carriage increases the variety of applications such as invoicing and posting to accounts receivable and accounts payable and inventory accounting. Write INTERNATIONAL BUSINESS MACHINES CORP., ELECTRIC TYPEWRITER DIV., 545 MADISON AVE., NEW YORK 22, N. Y.

### For Your Sewage Plant Power Needs

350 Internal combustion engines, well suited in performance, fuel economy, service and reliability to the needs of municipal sewage disposal plants, are the subject of current literature offered by CHICAGO PNEUMATIC, 8 E. 44TH ST., NEW YORK 17, N. Y. CP engines are available in ratings from 120 hp to 2280 hp.

### Equipment Planning Catalog

351 A new catalog, designed to serve municipalities as an equipment planning aid for 1961 is announced by INTERNATIONAL HARVESTER CO., DEPT. AC-9, BOX 7333, CHICAGO 80, ILL. *International Tractors and Equipment* gives specifications, and helps you rate your job requirements against the most efficient IH power size.

### Snow Removal, Ice Control Equipment

352 One-way and reversible snow plows that assure fast, low-cost snow removal and hydraulic tailgate, hydraulic drive tailgate and hopper spreaders that will help you keep traffic rolling safely and smoothly during winter months are described in catalog literature currently available from THE FLINK CO., 3509 N. VERMILLION ST., STREATOR, ILL.

***(See page 93 for more Bulletins)***

# Now... a 14′ digger at a 12′ price!

DIGGING · LIFTING
HANDLE WITH CASE
Utility
LOADING · CARRYING
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CASE

## New CASE® 530 *Utility* BACKHOE-LOADER speeds public works without budget increase

Why sacrifice production with limited-duty diggers and undersize loaders, when the *same budget will get you a fleet of J. I. Case 530 14′ backhoes and rugged 2000-lb. loader rigs?* New Case Model 530 saves over $1500 compared to other 14′ diggers . . . gives you faster trenching and loading, *plus* extra ruggedness and durability.

Case 530 drives anywhere up to 18 mph . . . cuts trenches 14′ deep . . . digs 16′9″ from pivot . . . loads any size truck . . . swings 180° with foot-pedal hydraulic control for fast cycling. Its 2000-lb. front-end loader applies 3700-lb. breakaway, dumps with over 9′ clearance for fast dump-and-go. It's a husky machine with highest quality features, including stress-engineered *alloy-steel* backhoe boom, dipper stick and buckets, *plus* power steering, shuttle transmission, 14.9-24 tires.

### Complete new line for '60

Other Case time- and money-savers for municipalities: *Model 430* 1000- or 1200-lb. Loader with optional 10′ backhoe, mowers; *Model 310D* Crawler Tractor with 3500-lb. loader, angling dozer, bulldozer, 14′ backhoe. Full line of quick-change attachments for all tractors.

### Equipment appropriation not needed

Even if your budget contains no money for equipment, you can get a new Case machine on long-term lease . . . convertible to full ownership. Lease payment amounts to as little as 3⅓% of sale value per month. Or you can purchase on low-interest installment terms.

See a free demonstration of the machine of your choice and get special financing details from your Case Dealer. Send coupon for literature.

**CASE®**

J. I. CASE CO., RACINE, WIS.

**J. I. CASE CO.,** Dept. J1560, Racine, Wis.

Send details on *Utility* machines:

Wheel tractor with ☐ 14′ Backhoe ☐ 2000-lb. Loader ☐ 10′ Backhoe ☐ 1200-lb. Loader

Crawler tractor with ☐ 14′ Backhoe ☐ 3500-lb. Loader ☐ Bulldozer ☐ Angling Dozer

Name ..............................................................

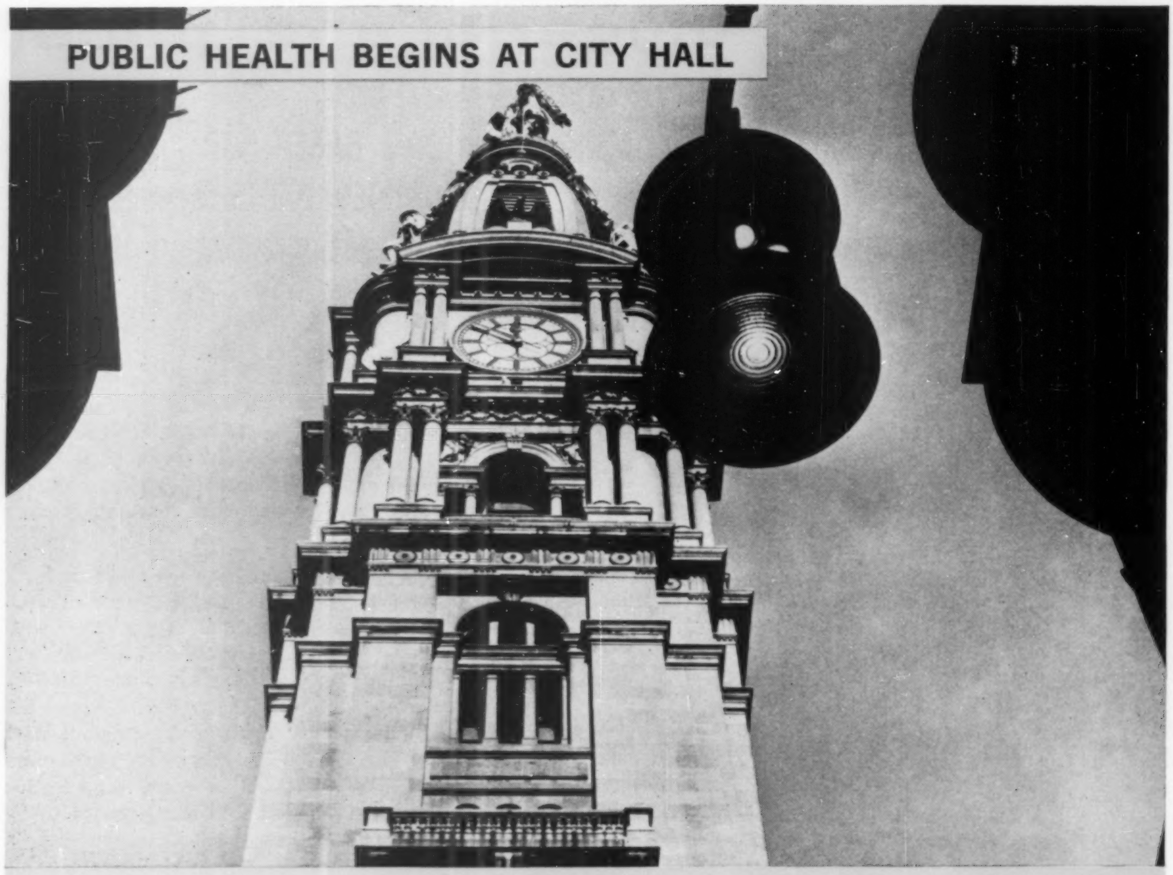
Address ..............................................................

Employed by ..............................................................

City .............................................. State..............................

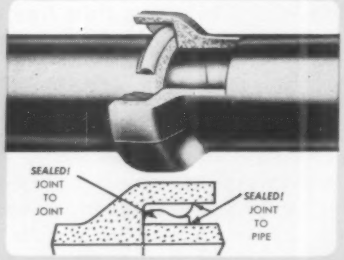
CU-BL-186

PUBLIC HEALTH BEGINS AT CITY HALL



*Sanitation, a vital element, but . . .*

Sewer System *only as good as* House Connections



Inferior quality house connections to sewer mains pull the big line, however well designed, back to inferior level. Infiltration in small lines discharges excessive ground water into the main, taxing its capacity . . . Wedge-Lock* Clay Pipe helps cities beat this problem. . . . Four through six-inch diameter Wedge-Lock in house connections gives triple protection against infiltration, exfiltration and roots. Reduces load in sewerage. . . . Reduces plant pumping. . . . So *safe,* it can be used *under* basement floors. Conforms to ASTM Specifications C 425-58T, Type 1. Put it in *your* plumbing code.

* Pat. T.M. Reg. U.S. Off.

WLC-460-7

**Wedge-Lock* CLAY PIPE**

THE FACTORY-JOINTED CLAY PIPE AVAILABLE NATIONALLY FROM LOCAL MANUFACTURERS

Write to any of these manufacturers for literature or a Wedge-Lock demonstration

Cannelton Sewer Pipe Company............Cannelton, Ind.
The Clay City Pipe Company..............Uhrichsville, Ohio
Graff-Kittanning Clay Products............Worthington, Pa.
Larson Clay Pipe Company......................Detroit, Mich.
Lehigh Sewer Pipe & Tile Company........Fort Dodge, Ia.
The Logan Clay Products Company............Logan, Ohio
The Owensboro Sewer Pipe Company..Owensboro, Ky.
Pomona Terra-Cotta Company..........Greensboro, N. C.
The Robinson Clay Product Company........Akron, Ohio
Superior Clay Corporation................Uhrichsville, Ohio

# CATALOGS *for Improved Municipal Services*

Write to address given or circle corresponding number on free post card on page 63.

### Literature for Sewage Men

353 An *Engineering Data Manual* on sewage lift stations and factory-built sewage treatment plants and new information *Bulletin* 500-A on vertical close-coupled non-clog sewage pumps are yours for the asking. Just write SMITH & LOVELESS, DIVISION— UNION TANK CAR CO., DEPT. 10, P. O. BOX 8884, KANSAS CITY 15, MO.

### Your Municipal Power Needs

354 . . . can be met most economically by engines that produce a high power-to-fuel ratio and give dependable, trouble-free performance. Such engines are Superior engines, and they'll also meet your requirements for automatic, unattended or remote control operations. Write WHITE DIESEL ENGINE DIV., THE WHITE MOTOR CO., SPRINGFIELD, OHIO.

### Turbine Engines for Fire Service

355 Gas turbine engines will soon be powering an aerial ladder truck for Seattle and a pumper for San Francisco. Both turbine-powered units will be world firsts; both are being built by AMERICAN LAFRANCE, ELMIRA, N. Y., which can tell you about the many advantages turbine engines bring to dependable fire fighting vehicles.

### Takes the Reach Out of Overhead Maintenance

356 These space-saving aerial ladders can be truck mounted for outdoor use or portable base mounted for in-plant service. They permit inclinations up to 72°, have full rotational sweep of 360° and are semi automatic in operation. Illustrated Crows'nest brochure gives full facts; write INDUSTRIAL SYSTEMS CO., DEPT. J, MATAWAN, N. J.

### Municipal Accounting Made Easier

357 Office automation equipment can put you on the road to new accounting efficiency. It has Clackamus County, Ore., which with the aid of three F-2500 computers is now trimming tax billing time 60% and saving 90% on calculating and processing real property reappraisals. BURROUGHS CORP., DETROIT 32, MICH., can give you all the facts.

### For Clean, Free-Flowing Sewer Lines

358 If you want to prevent deposit build-up and avoid clogging by tree roots, trash and other impediments, just apply Sanfax 22 regularly to your sewer lines. It will increase line efficiency, slash maintenance costs, minimize flooding. For details, write SANFAX CORP., P. O. BOX 604, ATLANTA, GA.

### Rigid Plastic Pipe Filtering System

359 In the Marine Arena at Madeira Beach, Fla., where metal and polyethylene pipe failed, a tough, rigid Cycolac ABS pipe filtering system is delivering a high level of clear, pure water, with protection against rust, corrosion and ionization caused by salt water. For details, write MARBON CHEMICAL, DIV. OF BORG-WARNER, WASHINGTON, W. VA.

### Just Right for Sewage Treatment Plants

360 If you're looking for a really rugged chain to match rugged service in your sewage treatment plant, look to literature and information from MOLINE MALLEABLE IRON CO., ST. CHARLES, ILL., specialists in chain manufacturing, to tell you about the features of this long pitch pintle chain and its applications.

### Dictating Machine

361 Here's a new budget-priced machine that makes magnetic tape dictation easy—at the office, on the road, and at home. An illustrated folder gives full facts on the new Envoy; write EDISON VOICEWRITER, DICTATION CENTER, U. S. A., WEST ORANGE, N. J.

### Help with Municipal Financing

362 . . . can be obtained easily from the CORPORATE TRUST DIV., THE CHASE MANHATTAN BANK, 40 WALL ST., NEW YORK 15, N. Y., which will provide the skill, experience and efficiency to properly assist you and to handle the function of trustee or fiscal agent for revenue bonds in cooperation with local banks.

### Electronic Traffic Controllers

363 By writing to CROUSE-HINDS, SYRACUSE, N. Y., you can obtain complete technical information on a series of vehicle-actuated electronic traffic controllers, designed to provide the choice of basic controller and accessories that will give you the most efficient command of any specific intersection.

*(See page 94 for more Bulletins)*

Is your administration stumped—by stumps?

UNSIGHTLY STUMPS . . .

CHEWED UP AND OUT...

BY DAVEY STUMP-EATER

**No need to be!**

Quickly, economically, a Davey power-driven Stump-eater chews stumps off to below ground level. ZZZZZZZZZ . . . and the ground's ready for resodding!

Neat? Of course. It's a typical example of Davey Tree Service, done by specially engineered equipment and men with special tree-care knowhow.

Whatever kind of tree service you need done for your community's trees, it's best done by Davey's trained, experienced men, with long-proved techniques and the finest modern equipment.

Shade tree pruning • Tree trimming for wire clearance • Tree removals • Stump removals • Complete spraying and feeding service • Chemical weed and brush control • Tree planting • All community tree maintenance

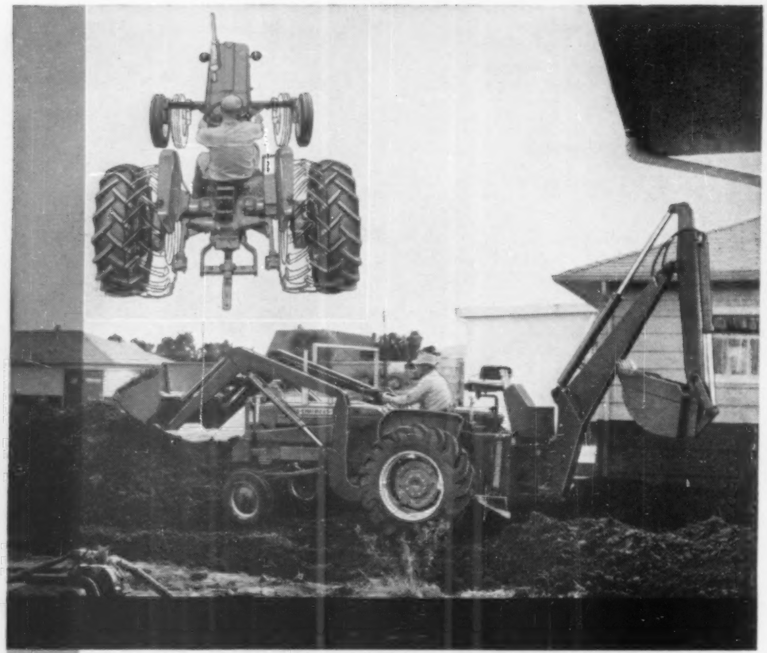
DAVEY TREE EXPERT CO.

**DAVEY TREE EXPERT CO.**

Kent 16, Ohio

MARTIN L. DAVEY, JR.
President

THE OLDEST AND LARGEST TREE SAVING SERVICE IN THE WORLD



# NO BLOCKS, NO JACKS!

## Shift wheels any time . . . Front and Rear

Automatically? The nearest thing to it, and you'll find it only on Allis-Chalmers D-Series utility tractors. Power-Shift rear wheels move out wide for extra stability . . . pull in for close work just as easily. Roll-Shift front axle on the D-14 and D-17 moves wheels in or out in seconds—you don't have to take chances with a narrow wheel tread!

Practical? You bet it is, and it's just a sample of the kind of engineering you get throughout every model of Allis-Chalmers utility tractors.

Put your investment in *working design* that puts more money in your pocket on every job.

What size do you need? It doesn't cost to get the facts!

**D-10 • D-12 • D-14 • D-17**

**Utility tractors from 34 to 63 engine horsepower with companion equipment to match your needs!**

**ALLIS-CHALMERS**

60-9

**ALLIS-CHALMERS MFG. CO**
**Utility Tractors & Equipment, Milwaukee 1, Wisconsin**

Please send me more information about Allis-Chalmers utility tractors with ☐ backhoe ☐ loader ☐ fork lift

Name____________________

Firm____________________

Address____________________

City______________State__________

**SOLD BY ALLIS-CHALMERS DEALERS EVERYWHERE**

# YOU NEED *These catalogs*

Write to address given or circle corresponding number on free post card on page 63.

## Cut Globe Replacement Costs 60%

364 Vandalism was creating an appreciable problem for New York City, which uses pole-mounted orange-colored globes to call attention to fire box locations, until it switched from glass globes to globes of tough, durable Tenite Butyrate, a plastic of excellent light transmission, high resistance to impact, and good moldability. For details, write EASTMAN CHEMICAL PRODUCTS, INC., KINGSPORT, TENN.

## Submersible Pumps

365 They're sealed for life, noiseless and need no pump house. They eliminate danger of vandalism or contamination of the well. They're available in capacities from 20 to 20,000 gpm, heads to 1800 feet and motors to 450 hp. *They* are BJ submersibles. For literature, write BYRON JACKSON PUMPS, INC., P. O. BOX 2017 A, TERMINAL ANNEX, LOS ANGELES 54, CALIF.

## Smooth Mailing Operations

366 You get speed with accuracy in your mailing operations with a PB Model 3300-FH folding-inserting machine on the job—and you can use it for mailing tax bills and special assessments, for payrolls, refunds and other accounts payable. An illustrated booklet and case histories gives the facts. Write PITNEY-BOWES, INC., 8568 CROSBY ST., STAMFORD, CONN.

## Aluminum Christmas Decorations

367 Now you can deck your community in a striking array of aluminum foil Christmas decorations—trees, garlands, wreaths, scrolls, pole wrappings—that are fireproof and reflect color, light and bring forth glitter. For details, write ALUMINUM COMPANY OF AMERICA, INDUSTRIAL FOIL DIVISION, 1687 ALCOA BLDG., PITTSBURGH 19, PA.

## From Incandescent to Mercury in Less than 9 Minutes

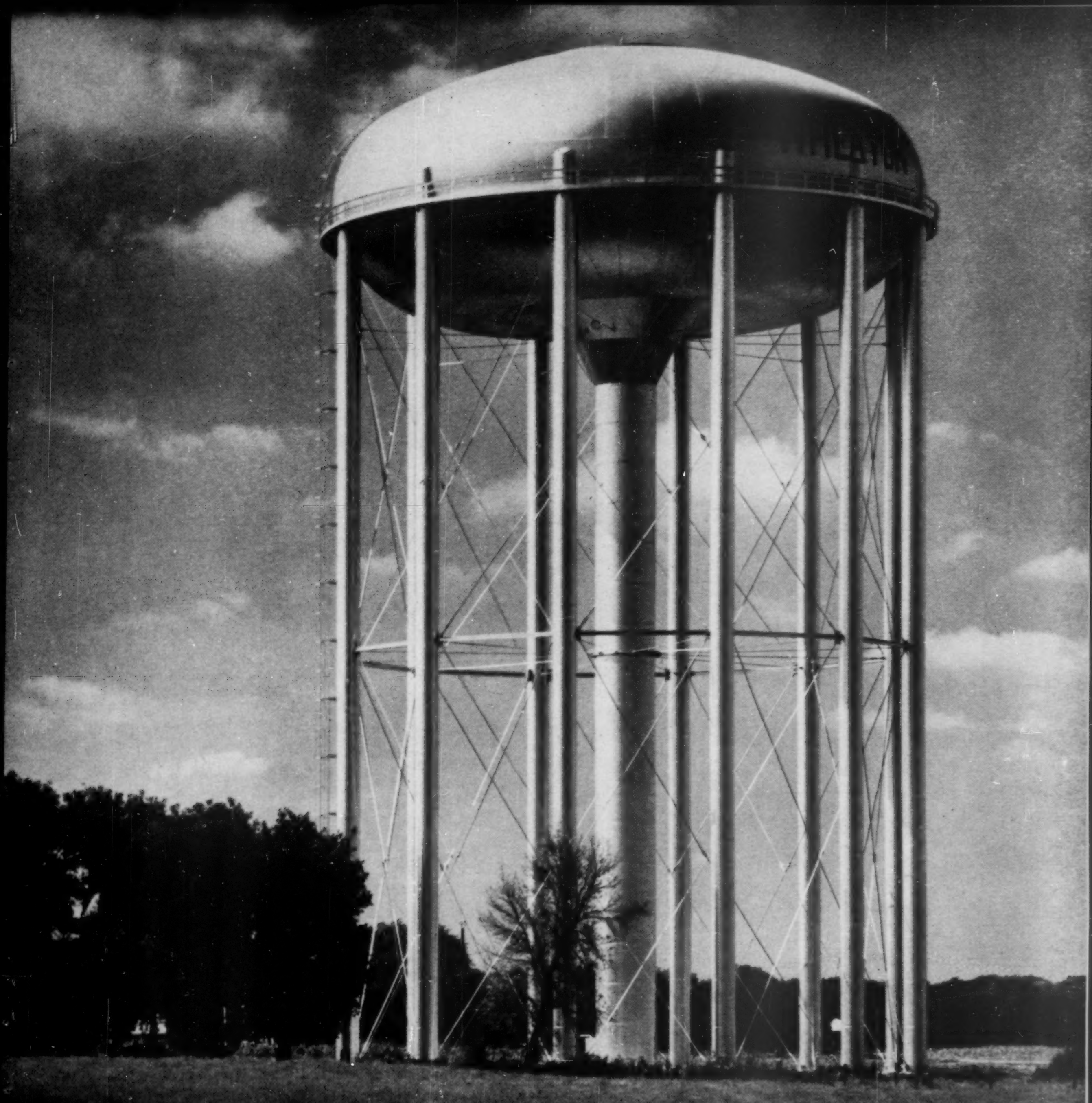
368 SYLVANIA LIGHTING PRODUCTS, a division of SYLVANIA ELECTRIC PRODUCTS INC., DEPT. 63, 60 BOSTON ST., SALEM, MASS., reports that technical information and a new descriptive brochure are available on its Mercury Conversion Kits, which permit conversion of existing heads to mercury in one easy operation.

## Unclogs Sewer Lines—Free Sample

369 Sewer lines blocked? Then now is the time to come to the rescue with Zep Sewer Aid, a fast-acting compound that will clear the line from end to end of any alkali-soluble obstruction. It can be used in preventive maintenance, too. For details and free sample, write ZEP MFG. CORP., P. O. BOX 2015, ATLANTA 1, GA.

## Meters, Feeders, Controls For Water Works, Sewage Installation

370 B-I-F INDUSTRIES, P. O. BOX 1342, PROVIDENCE 1, R. I., has just published an 8-page general bulletin which provides capsule information about its butterfly valves, supervisory control systems, totalizing meters, water and waste treatment equipment and systems, flow meters, process instrumentation, feeders for solids and liquids and blenders for liquids. Request *Bulletin Ref. No.* C001.20-1.



PUBLIC
SERVANT

This 1,500,000-gallon Horton Spheroidal elevated steel water tank was designed and built by CB&I to serve the City of Wheaton, Illinois. It is 130 feet to bottom . . . has a 30-foot range in head.

Horton Spheroidals, introduced by CB&I in 1958, are built in standard capacities ranging from 200,000 to 3,000,000 gallons. Contact our nearest office for full details.

CHICAGO BRIDGE & IRON COMPANY

332 SOUTH MICHIGAN AVENUE
CHICAGO 4, ILLINOIS

OFFICES AND SUBSIDIARIES IN PRINCIPAL CITIES THROUGHOUT THE WORLD

M67CB

THE
COST
OF THE BEST METER
IS PEANUTS
TRIDENT
TRIDENT

## COMPARED TO THE MONEY IT EARNS

Figure it this way: ■ Write down the revenue you earn each year from the average meter: $________. Now multiply this by seven (the number of years many Commissions permit a meter to stay in service before retest) or by the number of years required by *your* local regulations. ■ What have you got? $________. A figure somewhere in the neighborhood of $350 to $700? That's the money you entrust to just one water meter while your back is turned. That's the money it earns, twelve to twenty times its price. ■ Like any instrument, a meter runs slow as it wears, and gives water away before it is brought in for test and repair. Now if *one* meter, by virtue of better design and workmanship, stays accurate and brings in just 1% more revenue over the years, how many extra dollars is that worth to you? $3.50? $7.00? ■ That's how much more you could afford to pay for a Trident water meter. ■ There's extra value, too, in Trident's interchangeable design. New Trident parts fit old Trident meters. This "no obsolescence" feature insures automatic modernization, keeps repair costs down and protects your meter investment. Ask your Neptune representative for the facts.

**neptune**
TRIDENT WATER METERS

**NEPTUNE METER COMPANY**
LIQUID METER DIVISION

*47-25 34th St. Long Island City 1, N. Y. / Neptune Meters, Ltd., 1430 Lakeshore Rd., Toronto 14, Ont. / Offices in Principal Cities*

SEPTEMBER 1960

The American City

*A class in the mechanical laboratory learns how to maintain and use valves and hydrants. The course instructor is Mr. Thomas Hendrix of the Mueller Company. All instructors must conduct their classes on an impartial basis. No one is permitted to use the school for advertising or demonstration purposes in any way. Company representatives, when present at the school, are not even allowed to entertain the students after hours.*

# Water and Sewerage Training School

Neosho sparkplugs a new, fast-growing training course which is supported by manufacturers, municipalities and utilities and which draws applicants from five states.

By **GLENN HANDS**
Burns & McDonnell
Engineering Co.
Kansas City, Mo.

At Neosho, Mo., in the heart of the Ozarks, a new and popular school has been opened for water and sewage works employees.

The training course, sponsored by the Missouri Water and Sewerage Conference, has been named the Water and Sewage Technical School. It already has graduated six classes of 25 students each, and soon will offer five-day courses every other week. The courses provide intensive training in water and sewage system operations, including the elements of water and sewage treatment.

Lloyd Caughran and his wife, Mildred, manage and direct the school on a voluntary basis. Mr. Caughran's regular job is superintendent of the Neosho Water Treatment Plant. Mrs. Caughran takes care of the paper, clerical and stenographic work of the school. The school has a large backlog of applications but is equipped to handle only 25 students at a time.

Manufacturers, municipalities and utilities supply laboratory and mechanical equipment for the use of the students in training. Cutaway valves, hydrants, and meters help the student see and feel the parts involved. The equipment can be disassembled and reassembled by the students. Meter-testing equipment is available so that the student can actually test a few meters, both old and new, checking their accuracy at various flows.

Chlorine equipment, chemical feeders, meters and instruments are available for study of component parts, operating principles, common difficulties and their correction.

Manufacturers donating or lending equipment have recognized that such equipment is more effective than a display of their wares such as is provided at a convention or conference.

Actually it is a training for the men who will be using, maintaining and repairing the equipment. It

*Students insert a meter in a meter test bench.*

will mean that their equipment will receive better care and give more creditable service when it is installed.

Some operators have had no previous training on maintaining and servicing of the equipment, except by those tough teachers—experience and trial and error, and perhaps a battered instruction manual or parts list. When he gets in real trouble, he calls the manufacturer's service man.

"How much better it is for the profession, the public, and the manufacturers to have learned these lessons beforehand from experts in a training school," said a recent graduate. At this school, operators become more competent, because here they learn not only what they should do but also why they should do it and how to do it correctly.

The school is intended to augment the short courses given annually at the University of Missouri. Compared to the annual short course, which is limited to an enrollment of 40-50, the technical school at Neosho will train almost 500 per year, with the present facilities. It expects to offer 20 courses per year on alternate weeks.

The school will also supplement short courses provided in various sections of Missouri at water and sewage treatment plants where adequate facilities can be found. These sessions are usually held one day a month for five or six months, or at night in ten or 12 sessions. Now the operator may choose the type of school that fits most conveniently into his schedule.

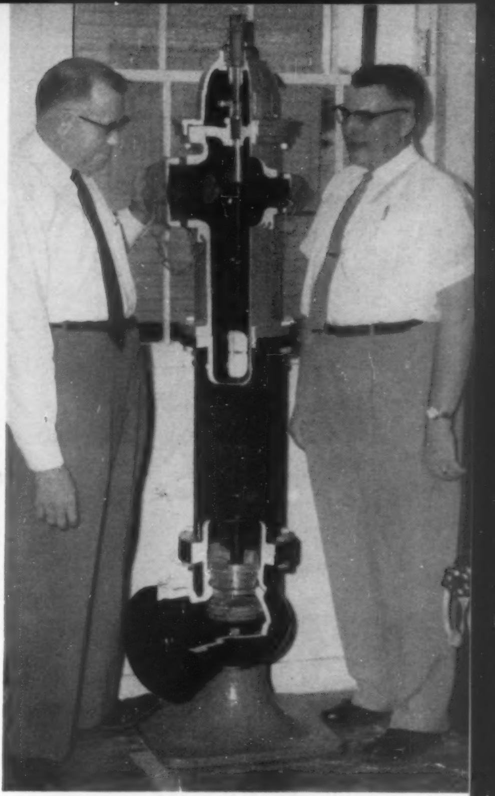
## Trains for Licensing

The courses are now designed to train the student for Class IV licenses which are issued upon passing examinations before the Board of Examiners of the Conference. Licensing is on a voluntary basis in Missouri now but members of the Water and Sewerage Conference are working on a bill for the State Legislature making licenses mandatory. As the school at Neosho grows, classes will be provided for the higher grades of licenses.

The school is not an exclusive Missouri operation. Already it is attracting students from Illinois, Kansas, Oklahoma and Arkansas, and inquiries from as far away as Venezuela. Nor is it expected to stop there, for it is envisioned as a national school attracting students from all over the continent. As the demand and funds and facilities grow, so will the school.

There seems to be no question about the demand for the school. Operators and city officials readily recognize the need for more training. The problem has always been: Where and how can it be obtained? Almost every state faces the problem that Missouri has faced for years—of providing adequate facilities for instruction. Universities have been helpful in offering short courses but this training has, of necessity, been limited to periods when laboratory facilities are not in use by the school for regular classes. Thus, the time available is usually a week or two in the sum-

*Mr. and Mrs. Lloyd Caughran of Neosho, Mo., are primarily responsible for the inception and operation of the school. In addition Mr. Caughran is Neosho's water works superintendent.*



*Author Glenn Hands and Lawrence Martin, chairman of the Missouri Water and Sewerage Conference, inspect a cut-away fire hydrant, one of the many pieces of equipment furnished for instructional purposes. Mr. Martin is an official of the Missouri Water Company, Independence, Mo.*

mer or a week between semesters, or a few days of "holiday" time. These seldom fit the busy operator's schedule.

If he is new in the profession, he needs the instruction immediately but may be required to wait almost a year for the next class. At the Neosho school, he can select from 20 separate dates the time he can most conveniently "slip away" for a week of thorough training. Here he will find not only laboratory equipment but also the tools and equipment of the water and sewage works profession, expert instructors, and a quiet peaceful atmosphere for education, study, development.

Instructors have been provided to date on a voluntary basis recruited from the offices of consulting engineers, sales engineers from the various equipment suppliers, the Department of Public Health and the utilities themselves. The sales engineers conduct classes on an impartial basis. When present at the school, they are not even permitted to entertain students after hours.

A Board of Directors, a Finance Committee, and an Advisory Committee have been set up to operate the school. Soon it will be necessary to employ a full-time manager and a secretary, as the project becomes established permanently.

## Fees

The fees for students are kept at an absolute minimum. Most of the funds are derived from contributions by industry, consulting engineers, and the utilities. Such sponsors find this a most satisfying method of contributing to the advancement of the water and sewage works industry.

An old frame building at Fort Crowder, now deactivated, is being used for the classes, laboratory and shop sessions. It serves very well for a class of 25, but across the street is a three-story barracks building of permanent construction standing unused that the school sponsors hope to obtain when they outgrow the present housing. Here the possibilities are unlimited and a school graduating thousands of students per year, offering advanced courses, and even engaging in some research for the industry is envisioned. But this will come later, pending acceptance and support of the school by the industry, utilities and potential students. Enthusiasm for the school is running high in the area.

Lloyd Caughran, director, will welcome requests for more information, contributions, applications and suggestions. Write him at Post Office Box 348, Neosho, Missouri. ◄◄

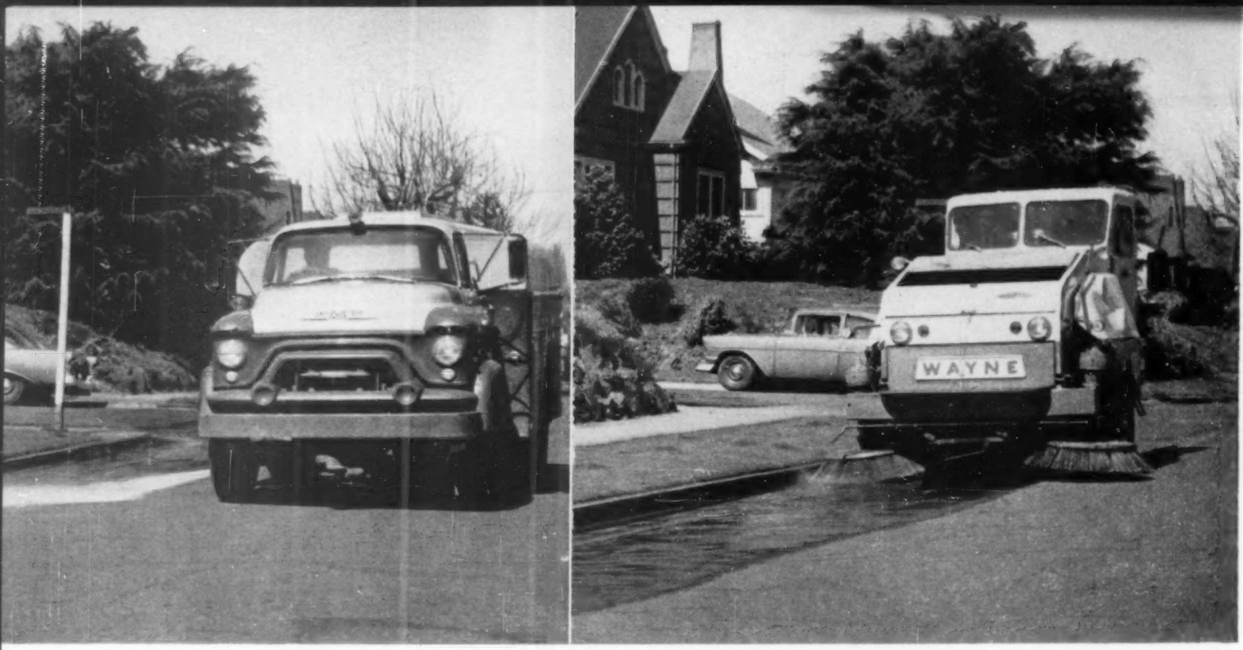
# More Public Waterfront Needed

Florida's booming water-front development is creating problems for the state, according to W. Turner Wallis in an address given at a recent meeting of the American Society of Planning Officials in Miami Beach, Fla.

Much waterfront land in Florida, because of its low elevation, requires considerable improvement before it is usable. The conventional method of improvement has been to fill with material dredged from adjoining water bottoms. In many cases, the water bottoms themselves are filled to make usable land. These fills are extremely lucrative at the expense of the public. Not only do they damage wildlife habitats, but they also affect tidal and current patterns which in turn cause erosion and shoaling conditions.

One sign that adequate protection of Florida's waterfront assets is becoming a matter of public concern was evidenced in the formation several years ago of the Florida Shore and Beach Preservation Association. This organization has been a rallying point for those interested in the problem and is now treating an atmosphere which should lead to a concrete program by state authorities. Aside from the need for protecting these resources from physical deterioration, Florida will have to plan for a greater proportion of waterfront land area to be set aside for public use.

Only an infinitesimal amount is now in public ownership. ◄◄



*Normally Portland first flushes its streets (left) before sweeping them with a mechanical sweeper (right); a flusher follows the sweeper to wash away the last traces of dust.*

### Ample equipment, a regular schedule and a special division in the Public Works Department all help Portland, Ore., to . . .

# Keep Streets Clean Mechanically

By **WILLIAM A. BOWES,** Commissioner of Public Works
and **L. H. ROSENTHAL, P.E.,** City Engineer

Street cleaning in Portland, Ore., is a full-time duty assigned to the Street Cleaning Division. Specifically, it is charged with the responsibility for cleaning our many miles of paved streets, full-width macadam streets, street drains, pedestrian steps, subways and overpasses within the city limits.

With the exception of a few jobs most satisfactorily done by hand, all work has been entirely mechanized. This modernization program makes possible an orderly schedule of street cleaning throughout the city and, in addition, has effected a saving of 60 full-time employees.

To maintain such a schedule, the division operates eight mechanical sweepers, eight flushers, three pick-up trucks, and one Eductor day and night. In addition, we use on the day shift only, two or three front-end loaders, four large dump trucks, and one glass patrol truck.

We flush and sweep the streets in the heart of the downtown business district six nights weekly. Seven "white wings" supplement this cleaning, working by day to keep the crosswalks and bus loading zones clean.

The outlying business districts receive attention two to five times a week at night. Bridges and close-in arterials, where parking is not a problem, are cleaned weekly by day in order to offer better visibility for oncoming motorists. We clean all other main arterials and concentrated industrial districts weekly, at night because of fewer parked cars.

Residential areas are machine-swept and flushed on a schedule which covers the entire city every three weeks. To maintain this schedule each sweeper covers approximately 21 curb miles per eight-hour shift. Sweeper operators dump the debris at designated areas close to their districts for pick-up later in the day by two front-end loaders operating in conjunction with a dump truck.

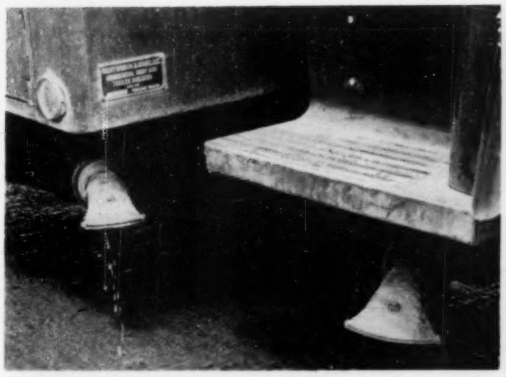
Full-width macadam streets are cleaned by hand labor, because the macadam surface will deteriorate under constant machine sweeping. These are by far the most costly streets to clean and because of this are cleaned only every 2½ months.

## Thorough Job

Normally we flush the streets ahead of the machine sweepers to settle the dust and propel the debris from the center of the street into the path of the sweeper. Then after sweeping, the streets are flushed again to wash the last traces of film into the gutters and drains. Each year our flushers use approximately 50 million gallons of water in flushing and cleaning.

Exclusive of the leaf season the department removes an average of 100 cubic yards of debris daily from the streets to the city dump.

Three small radio-equipped pa-



*Modification of the flusher nozzles, at the suggestion of a city employee, increases the effectiveness of the unit, particularly on bridges and traffic islands (right).*

trol trucks handle various and sundry cleanings such as subways, steps, broken glass and spots in need of special attention. One Eductor, operated by a three-man crew, works on a night-and-day basis to keep street drains free of clogging material. By this method every one of the 18,000 drains in the city is cleaned each year.

In the event of a freeze or snow during the night, the street cleaners immediately switch from sweepers to sand trucks and they then concentrate on sanding bridges and other heavily traveled danger spots to make them safe for travel until other Public Works crews are called out in the morning.

In the fall of the year, during Portland's annual leaf showers, the Street Cleaning Division utilizes additional men and equipment from other divisions of Public Works. Operation "Leaf Removal" is then added to the city's regular program.

Crews for this operation consist of mechanized units, complete with front-end loaders equipped with reinforced wire brooms that push the leaves into large piles. Other loaders then scoop the leaves into waiting dump trucks. Each year we haul approximately 3,000 loads of leaves, on request of property owners, free of charge for use as garden mulch. We keep requests for leaves on file and fill them in the fall when the leaves become available.

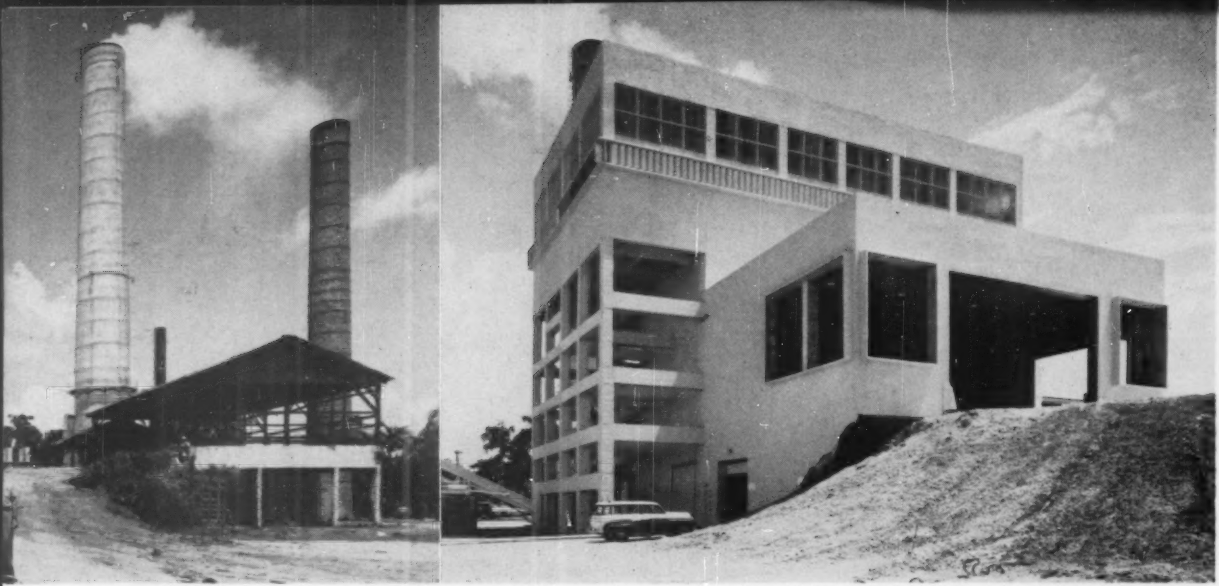
## Equipment

Street-cleaning equipment consists of 15 flushers varying from 1,000 to 1,750 gallons capacity and mounted on G.M.C. and Federal chassis; one Elgin Eductor also mounted on a Federal chasis; 15-dual-gutter-broom sweepers (14 Waynes and one Mobil Sweeper); five tractors with Wagner loaders; one Gravely tractor with sickle bar; and 19 dump trucks varying in size from two- to six-cubic-yard capacity.

Street cleaning personnel number 106 men, consisting of one Public Works operations supervisor; a clerk, six foremen, 43 automotive equipment operators, four utility workers and 51 laborers. The automotive equipment operators' group is further broken down into three classes and various classes exist within the other groups.

We do not break down street-cleaning expenses to a cost-per-mile figure. However, to give some basis of comparison our 1959-1960 budget for the department amounted to $746,589.60. On the basis of an estimated population for Portland of 405,000 persons, this breaks down to approximately $1.84 per capita. ◄◄

*Front-end loaders pick up debris left by the sweepers and load it into dump trucks for transfer to the disposal sites.*



*Now that the new plant is in operation, the old outmoded plant (left) will be torn down.*

# More Than Just a Garbage Burner

## Miami's newest incinerator takes into account economy of operation, neighborhood appearance, climatic conditions and the city's clean atmosphere

By **FRANK L. HEANEY***

Miami's new $1½-million incinerator was designed with four specific objectives in mind: (1) to minimize operating and maintenance costs over a period of 15 years; (2) to maintain desirable features at the site; (3) to provide the latest in combustion and control equipment; and (4) to accent the physical appearance of the structure. Like most incinerators, it is designed around the burning equipment—two 300-tons-per-day International rotary kiln units, one of which is scheduled for future installation, controlled through extensive instrumentation converging at a centrally located console. These furnaces are integrated into a storage-pit and crane-type operation and are partially enclosed in a concrete frame structure, towering almost 100 feet above street level.

The storage bin, 59 feet long, 37 feet wide, and 29 feet deep, provides four dumping bays. It holds an amount equal to one day's operating capacity or 600 tons. The 24-food-wide access ramp plus two doors at right angles permit a continuous flow of traffic. The Howe scale at the entrance door, removed from an old incinerator located on the same site and revamped before reinstallation, records the tonnage of each incoming load.

The tipping area, about 52 feet by 82 feet in size, has unusually high doorways to allow trucks with the body in the raised position to pass through.

### Present Equipment

Present refuse-handling equipment consists of a single five-ton P & H magnetic crane with stepless, electronic controls. This 60-foot-span crane has an air-conditioned cab to improve the efficiency of the operator. It utilizes a 3-yard Blaw-Knox bucket to charge the 8x6½-foot hopper. A second crane can be added when the second rotary kiln is installed.

Proper refuse handling is vital to plant efficiency, and here the crane operator plays an important role. It is his job to mix the incoming refuse to control moisture and to charge the furnace properly. This is of great importance in the Miami area where palm fronds are common. Considering a burning rate of about 60 cubic yards per hour per furnace, it is evident that the operator and the equipment must perform at peak efficiency to sustain the burning rate.

The principal reasons for installing rotary kiln furnaces include absence of stoking, continuous charging, small amount of residue that has to be removed, necessary burning rate and favorable operating and maintenance costs.

Refuse deposited by the crane operator into the hopper falls onto an inclined reciprocating grate where it is ignited by radiant heat and relayed into the rotary kiln. Actually, there are two sets of inclined grates, the first for drying and the second for ignition. Hot gases from the ignition grates pass over the drying grates to drive off the moisture and then discharge into the mixing chamber where they are reheated to 1,800°F to eliminate the possibility of odors.

Tumbling of the refuse in the 12-foot-diameter, 37-foot-long kiln causes agitation and mixing with combustion air to provide more complete consumption and less residue than in some other designs.

A screw conveyor under the kiln

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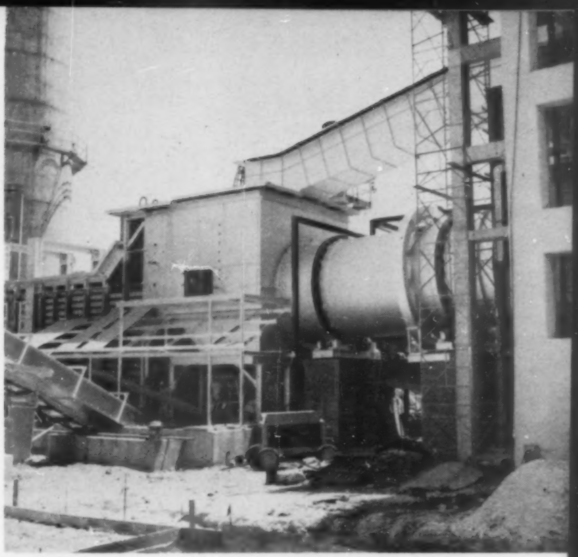
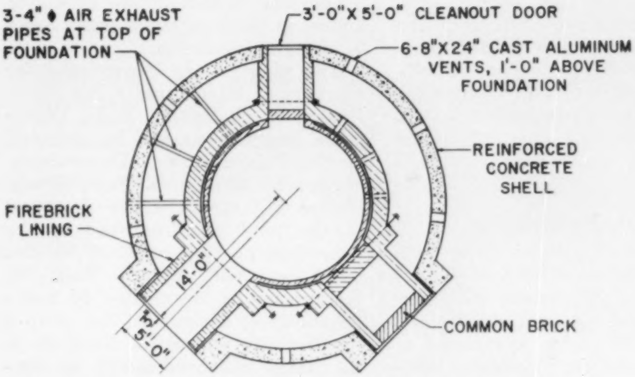
* Author Heaney, project engineer for the Miami incinerator, is a member of the staff of Fay, Spofford & Thorndike, Inc., consulting engineers of Boston, Mass.



*Miami's warm climate allows for placing a good portion of the plant outside the main structure.*

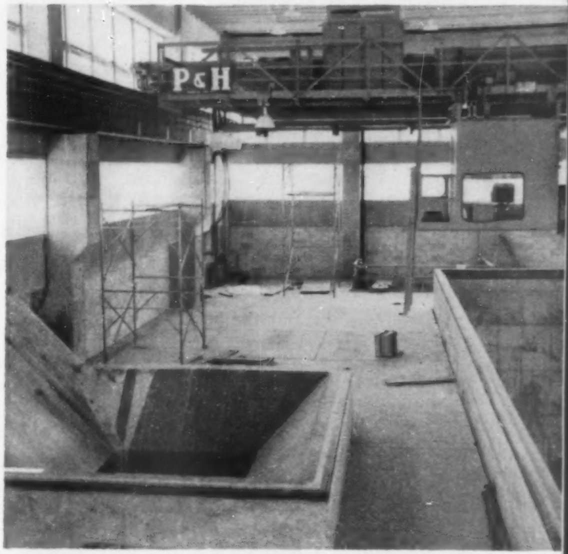

3-4" ϕ AIR EXHAUST PIPES AT TOP OF FOUNDATION
3'-0"X 5'-0" CLEANOUT DOOR
6-8"X24" CAST ALUMINUM VENTS, 1'-0" ABOVE FOUNDATION
REINFORCED CONCRETE SHELL
FIREBRICK LINING
14'-0"
3'
5'-0"
COMMON BRICK

*A cross-section of the stack taken near the breeching and showing the free-standing stack or liner.*

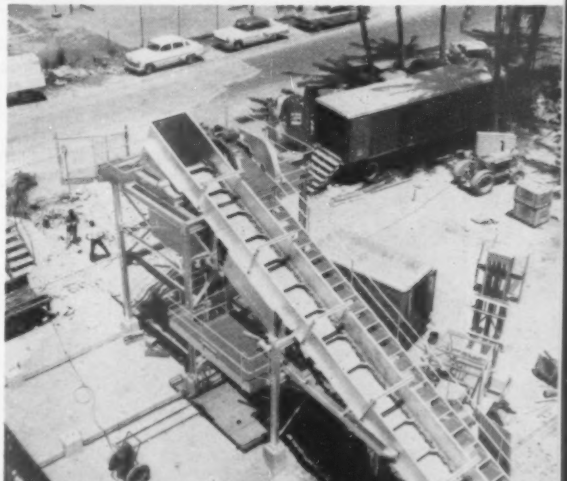
conveys siftings that fall through the ignition grate to the residue conveyor. A similar conveyor transports siftings from the drying grate to the kiln. Residue is deposited into a water-filled conveyor and then transferred to trucks for final disposal by means of a flight-type conveyor. The table on page 104 gives the ratings of the component parts of the incinerator unit.

The crane operator is responsible for proper charging to maintain the gas temperatures of between 1,400°F and 1,800°F necessary for optimum combustion. For this reason he must mix refuse in the storage pit so the moisture content of each load being fed into the incinerator is fairly uniform. Also, he must maintain a steady rate of feed to maintain steady furnace temperatures. Too fast a rate causes the furnace temperature to rise; too slow a rate causes the temperature to drop below the minimum needed for efficiency.

Since one of Miami's principal assets is its clean atmosphere, the removal of fly ash from the flue gas is essential. The fly-ash removal system consists of pumping water through pipe headers mounted in the breeching and spraying it into the combustion gases before



*With only one furnace installed, one crane will handle all charging duties. Provision has been made for the installation of a second crane when the plant is enlarged to full capacity.*



*This scraper-type conveyor system transports residue from the quenching trough to trucks for final disposal.*

they enter the stack. This cools the gas to about 800°F and helps remove the entrained fly ash.

Two Dorrco hydraulic cyclones separate the fly ash from the water, discharging the fly-ash sludge into the furnace-residue quenching chamber. The water is reused. Two Lawrence pumps rated at 250 gpm at 250-foot head and driven by 50-hp motors provide circulation in this system.

### The Stack

The stack has an internal diameter, constant at 13 feet, and an external diameter varying from 28 feet at the base to 17 feet at the top. It extends to a height of 200 feet and is designed to withstand winds of 150 mph. The stack design takes into account the possibility, although remote, of a failure in equipment used to cool the 1,800°F combustion gas. Adverse effects in reinforced concrete caused by high temperatures require an independent, free-standing stack or liner. This free-standing construction is made of fire brick that can withstand safely 1,800°F temperature. Steel straps extending vertically and circumferentially (known as a corset) provide structural support and rigidity.

Opposite the breeching, a target lining covering an area from the base of the stack to a height of about 30 feet, shields the concrete against excessive temperatures and abrasion.

The operator can check operating conditions in any principal section of the incinerators from a console-type control panel. Temperatures taken at various points in the incinerator and breeching are recorded continuously; and indicator gauges provide a quick check of draft conditions. Thermostatic dampers control over-fire air automatically to vary the combustion temperature range. A failure in the recirculation of flue-gas cooling water energizes an alarm system, giving the operator notice to cut in a water supply from a municipal line.

### Planned Architecture

With an architectural style similar to that of a modern industrial building, the incinerator structure has a stepped, flat-roof design and is oriented to take advantage of natural ventilation. Prevailing east-west winds flow through the operating area uninterrupted by any large wall construction. Louvers are added to direct this ventilation and to enhance the appearance of the structure. Dissimilar types of materials purposely are specified—aluminum for the upper bays and colored fiber glass for the lower bays. The reasons are indicative of the extent of design planning: the smoother, inaccessible surfaces in the upper bays are less likely to collect dust; the lower fiber glass panels, within reach for periodic cleaning, add color.

The building is located on a 4.4-acre site in the Coconut Grove area of Miami. Although not centrally located, the site has advantages of proper zoning for such a plant, was the site of an existing outmoded incinerator, is well served by major highways, and is sufficiently large to permit expansion.

The plant, being constructed for the City of Miami under the direction of W. T. Eefting, P. E., Director of Engineering, will be operated by the Public Service Department, headed by Ernest A. Fort. Grady Phelps will supervise the operation of the new plant as well as the operation of the existing 900-ton plant at 20th Street. Paul W. Andrews was in charge of coordination of design at the project for the city and R. E. Ferencik is in charge of coordination of construction at the project for the city and maintains liaison with the consuting engineers, Kononoff & Smith, Inc., of Miami, and Fay, Spofford & Thorndike, Inc., engineers, of Boston. J. Robert Ettles is the resident engineer with Steve Rauh representing International Incinerators, Inc. The McDonough Construction Co. of Florida is the contractor. The writer is project engineer for the consulting firms. ◄◄

### Manufacturer's Ratings of Component Parts

| | Grate Area and Kiln Area (sq. ft.) | Effective Area for Burning (sq. ft.) | Normal Refuse Burned (%) | Lbs. Refuse Burned per Hour | Lbs. Refuse Per. Sq. Ft. Grate Area | Cubic Foot Furnace Volume | Cubic Foot Volume Per Ton Capacity |
|---|---|---|---|---|---|---|---|
| **Drying Grates and** | 110 | 40 | 10 | 2,500 | 63 | 500 | 16 |
| **D. G. Chamber** | | | 5 | 1,250 | 31 | | 33 |
| **Ignition Grates** | | | 35 | 8,750 | 67 | | 29 |
| **I. G. Chamber, and** | 130 | 130 | | | | 2,020 | |
| **By-Pass** | | | 30 | 7,500 | 58 | 1,040 | 34 |
| | | | | | | (T) 3,060 | |
| **Rotary Kiln and** | | | | | | | |
| **Comb. Chamber** | | | 55 | 13,750 | 54 | 2,808* | 54 |
| **To First Bank of** | 1,020 | 255 | | | | 3,773** | |
| **Sprays in the** | | | 65 | 16,250 | 64 | 2,280*** | 45 |
| **Spray Collector** | | | | | | (T) 8,861 | |
| **Total** | | 425 | 100 | 25,000 | | 12,421 | |
| **Average** | | | | | 59 | | 41 |

* Volume of rotary kiln only
** Volume of combustion chamber portion
*** Volume of expansion chamber portion

*Chief Cockey with a microfilmed map mounted in Filmsort aperture card and C. S. Burk, superintendent of the communications bureau, at the Filmsort reader for large records.*

# Microfilms Show the Way to the Fire

## Baltimore County, a sprawling industrial-residential area surrounding the City of Baltimore, uses a microfilm system to speed routing directions to its fire companies

By **F. LEE COCKEY,** Deputy Chief
Baltimore County Fire Bureau, Towson, Md.

In 1951, when the thirty volunteer and ten paid fire companies protecting Baltimore County were consolidated into a county department under the supervision of one chief's office, a means was necessary to permit headquarters to give immediate routing information to companies.

Before the consolidation each of the companies acted independently, receiving its own calls at a local fire house and, in large part, servicing only its own area. When a company was required to leave its district to assist a brother company, the call invariably came from a local telephone operator familiar with the roads, who could instruct the driver in the quickest routing.

Now all calls for assistance come to the Chief's headquarters in Towson, Md., from which they are immediately sent to the proper company either by radio to the volunteer companies or by telephone to the paid companies.

While the dispatchers were trained in their field, their knowledge of *all* county roads was limited. After examining and discarding complicated map systems, we decided on microfilm as used in the County Clerk's office.

As an initial step the official county maps were divided into areas, then corrected by eliminating non-existent streets and roads and adding the new ones. Much of the credit for this is due the volunteer companies. When the areas had been corrected, they were further subdivided into sections showing the specific parts of each area for which the various companies would be responsible.

### Microfilming

The sections were then microfilmed by Recordak Corporation at their Washington office and mounted in aperture cards which were returned to the Towson headquarters. Two sets of cards, which are updated every six months, were made to permit cross-indexing by intersection and each card showed not only all roads and intersections, but, wherever possible, building numbers on each street. Also installed was a Filmsort Surveyor or reader through which the fireman on duty views the aperture card for needed information.

When a fire occurs any place in Baltimore County, the alarm, whether telephone or box, is received by a dispatcher who, through the use of the cards and reader, is able immediately to notify the proper company of the location and, if necessary, to give accurate information as to the quickest route.

Currently the location of all fire hydrants and alarm boxes in the county is being added to the microfilm cards. Later on we expect to microfilm drawings of the interiors of public buildings and industrial plants, showing electrical installations and cut-offs, water supply lines and controls as well as potential "hot spots" to be investigated immediately in case of fire.

With this and other information, it will be possible for a company commander on the scene of a fire, using cards, a hand viewer and two-way radio, actually to direct the step-by-step battle. ◄◄

***A 1960 Mack 750-gpm pumping engine is in service at Engine Company 7; there is another just like it at Engine Company 8.***

# Richmond's Fire Activities

By **EDGAR A. SHERRY**
Chief, Bureau of Fire

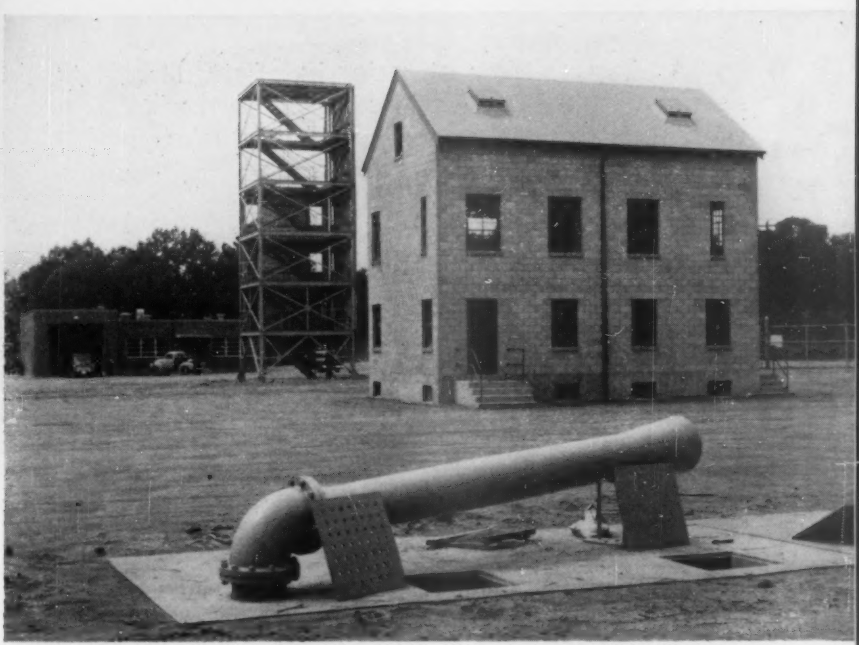
Fire department operations are not all fighting. One of our latest innovations is a fire pre-planning program. Forms have been filled in giving pertinent information on each public building by firefighting personnel of the Richmond, Va., Bureau of Fire. With such data pre-planning attacks are being prepared on all buildings in the city.

The soundest preliminary to successful fire fighting is training. Just east of the Richard E. Byrd Airport is the Fire Bureau Training School. Opened on November 24, 1959, covering two acres and costing $115,000, the school comprises an administration building, training tower, fire and smoke house, drafting pit and oil pits. The administration building contains a classroom, apparatus room and kitchen. The training tower is used for aerial and ground ladder work, advancing hose lines and rescue. The reinforced-concrete fire and smoke house has a basement containing three underground pits used when the effect of smoke and heat are necessary in solving a firefighting problem. The first floor of this building can be furnished to serve as a residence. The second story may be arranged to simulate a warehouse or office building. Fires fought in the attic are just what the trainees may face. The drafting pit is built according to the National Board of Fire Underwriters regulations. It is used to teach drafting (lifting water from a pond, tank etc.) as a source of supply for firefighting. The oil pits are very important in the curriculum of the Drill School. The dense smoke and heat caused by burning fuel oil is a definite hazard in a firefighter's life. Fortunately, there have not been a large number of oil field fires, but the oil refineries, bulk storage plants and gasoline delivery trucks within the city's boundaries make such preparedness a must.

Such is the training of all new firefighters. Their six-week basic training gives the experience that would have taken six months without this drill school. In addition, an advanced firefighting course is given to all fire personnel.

## Communications

The Communications Division radio control center is centrally located and handles all emergency calls for fire and ambulance equipment. The Fire Bureau operates the Emergency Ambulance and Rescue Service for the city. Each of the three units is equipped with first-aid and oxygen-administering



***The Fire Bureau training school—the picture shows (starting at the front) the drafting pit, the fire and smoke house, training tower, and the administration building; the oil pits are not shown.***

equipment and manned by first-aiders trained in rescue work.

Richmond's first big fire was in 1781, when the city, left almost defenseless with her men away in the army, was entered and fired by Benedict Arnold. The next big Richmond fire, in 1787, wiped out forty to fifty buildings with a loss amounting to half a million dollars.

The water supply consisted only of private wells and springs and public wells dug here and there at street corners. The first reservoir was a public "basin" twenty feet square, near the Capitol, fed from Shockhoe Hill springs by wooden pipes.

Before better defense against fire developed, fire insurance came to Richmond. The Mutual Assurance Society was organized and the first fire insurance policy in the United States was written on the Masonic Hall which still stands on East Franklin Street. The policy is still in effect.

"Richmond Fire Society" was organized in April, 1816. Each member paid dues and 75 cents for a book of regulations.

"An Enterprise of Great Importance to the City" was begun in 1830 when money was appropriated for a water supply system, reservoir, pumphouse and private hydrants for the citizens. With the water works finished, the city purchased the "hydraulian," a powerful engine pumped by forty men. which could throw a stream of water clear over the Capitol. So heavy was the engine, it had to be stationed permanently near the basin, and water pumped from there as far as the hose could reach.

On October 25, 1858, the Council inaugurated the paid department. The following year saw a steam fire engine built here in Richmond. It could throw a stream of water over the American Hotel.

In 1888, the Fire Department was placed in the hands of a Board of Fire Commissioners and so remained until 1919. By the end of the Nineteenth Century, the Fire Bureau had 70 firemen and 62 call men. There were eight steam engines and horse-drawn hook-and-ladder trucks. Motorization of the Richmond Fire Bureau began in 1911. The next year, three chief's cars, a second motor engine and a motor aerial truck and a hook-and-ladder were added.

The firefighting division now consists of three battalions, and works a two-platoon system (24 hours on and 24 hours off). The city of Richmond is protected by 426 firemen and officers and 66 pieces of fire apparatus. The latest addition is the newly delivered pumping engine pictured. ◀◀

*The city's fire department trains with plant personnel in extinguishing difficult oil fires.*

# How A Nuclear Industry And Its City Cooperate

## . . . to insure high standards of municipal service in the face of new problems of radio-activity, security restrictions and civil defense measures

By **E. P. McDONAGH,** Security Director
M & C Nuclear, Inc., Attleboro, Mass.

Take a forward-looking city such as Attleboro and add to it a forward-looking company like our own. The result will be a significant pattern of constructive development that is going to be followed by many other cities and industries as nuclear power takes its proper place in the constructive life of a free people like ourselves. Attleboro, a city of 25,000 in the southeastern part of the state, now counts our nuclear industry the nation's first and largest privately-owned plant engaged in the manufacture of nuclear fuel. Both look forward to a long and productive partnership.

For decades Attleboro has been associated with jewelry craftsmanship. M & C Nuclear's parent company had its roots in this industry. The General Plate Company, which became Metals & Controls Corp., was founded in the city in 1916, taking advantage of the area's skilled labor pool. (M & C Nuclear, Inc., became a subsidiary of Texas Instruments, Inc., when its parent company, Metals & Control Corp., merged with Texas Instruments in 1959.)

In 1952, the seed for rapid expansion into the young nuclear industry was planted. Negotiations with the Atomic Energy Commission resulted in extending the basic metalworking skills of Metals & Controls Corp. to making nuclear fuels.

Some of the new metals have radioactive properties. When properly handled they present no danger to employees or the community. Nevertheless, both the city and the industry realized that this could be a source of trouble. At this crucial point, company management might have chosen security restrictions as a screen against community officials. Or, Mayor C. K. Brennan and his City Council might have turned a cold eye towards the new and unfamiliar business. At this time, before the inception and public awareness of atoms for peace, nuclear work was closely associated with destruction. The community might have tightened its zoning laws to prevent the emergence of a company in the nuclear industry.

### Cordial Relations

Happily, both decided to cooperate, a natural result of the cordial relations which have existed between Attleboro and Metal & Controls since the company's earliest days.

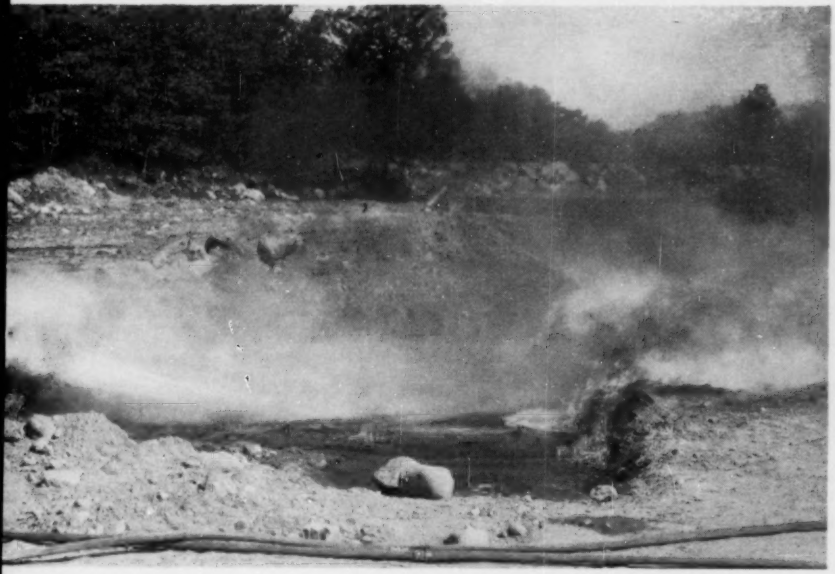
Facilities for nuclear activity in 1952 consisted of a portion of another Metals & Controls department and involved no more than a dozen people. Today the M & C Nuclear plant extends over 140,000 square feet, employs some 800 people, and represents an investment of several million taxable dollars in the community.

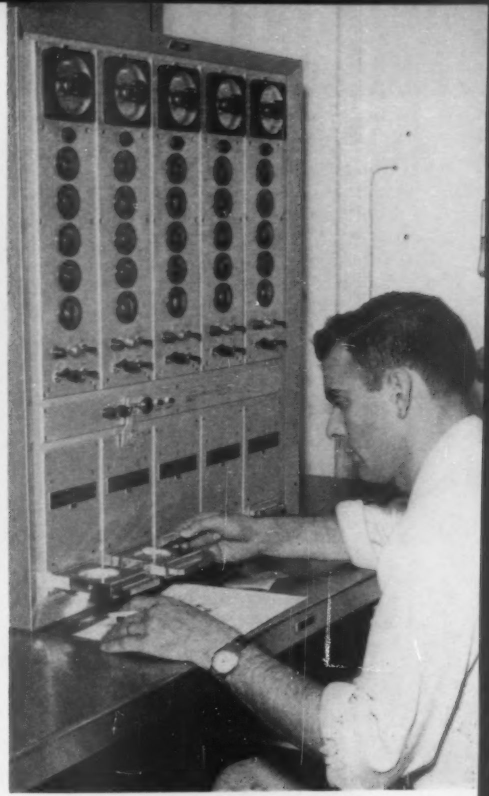
In return, the community has supplied, in more than adequate amounts, the necessary lifelines for a growing industry. Public Works Superintendent Russell F. Tennant exercised resourceful engineering foresight to insure that our supply of water would be adequate. Police Chief Peter J. Marron and Fire Chief Hiram Packard have adapted their work to these new conditions.

To cite examples, the city has built a new $200,000 fire headquarters to supplement three existing stations, the department has a complement of 82 full-time men, and the completely new telegraph alarm system soon will be installed. The Attleboro fire-loss rate on taxable property is far below the national average. Police protection is of a similar calibre.

A full-time man, trained in the newer sciences including the radiological aspects of health, is employed by the city health department to handle industrial-community health problems.

Beyond these services provided by the city, perhaps the greatest single benefit that derives from the





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*Inside the plant, a health physics inspector checks the radiation doses with a five-channel scintillation counter.*

working relationship of Attleboro and M & C Nuclear, Inc., is the planning that has been accomplished to minimize the effects of any disaster that might occur in the plant or community.

Attleboro has lived through many a New England hurricane, and its reaction to such natural disasters has been calm and effective. M & C Nuclear will benefit from the weather-wise municipal officials and their quick action to restore city services to normal and thus allow for a fast resumption of production.

## Planning for Attack

On the other side of the ledger, planning for those disasters that are man-made, especially those resulting from enemy attack, is notable in several areas, yet there remains much to be done. Outlined below is a brief description of some aspects of the total plan which have been realized:

1. In the early stages of plant construction, a system of security alarms was installed and tied in to the police department. The touch of a switch will bring police help to the plant in a matter of minutes.
2. Security clearances were obtained for the Attleboro Fire Department chief and three of his deputies to permit their access to all areas of the plant. Agreement was reached that the fire department takes full charge if it becomes necessary to enter the plant.
3. Members of the Attleboro police force give lectures on such topics as arrest and seizure to the company's 14-man security force. Because of the nature of the company's work, guards are armed and have been named as special police officers of the city. In an emergency situation the disciplined company protection force is available as a city police reserve.
4. The company's health physics specialists advise and train Attleboro fire department personnel on the use and procurement of radiation-measurement equipment. The company's trained radiation specialists, along with their modern detection equipment, are on 24-hour call. In the event of nuclear bombing or fallout, they would provide the community, in cooperation with local Civil Defense authorities, with all important information regarding prevailing radiation hazards. National Civil Defense authorities estimate that, if such information is determined and made available and the general public acts on it, casualties in nuclear attack could be lessened by 50 to 75%.
5. The city fire department aids in training the company's volunteer fire brigades, whose membership includes a number of employees who are volunteer firemen in their own communities.

These brigades constitute a reserve of 36 men trained in firefighting which is available for emergencies in the community and which would report directly to the city fire chief if needed. The equipment purchased by the company is compatible with the city's equipment. The company seeks fire department help in purchasing. For example, company and city self-contained breathing apparatus is the same type, allowing either company or city fire fighters to borrow equipment which the men are trained to use.

6. Doctors at the community-sponsored hospital and the company's medical staff have joint emergency treatment plans for disaster victims. Personnel, including medical, administrative and nursing, at the local hospital have received radiation treatment information from a physician specifically trained in radiation medicine.
7. Fire chiefs of eleven surrounding communities have been familiarized with the company's work and emergency protection plans. All might be called in for a major fire.
8. M & C Nuclear, Inc., partici-

pates in national civil defense air raid alerts. Briefings, joint exercises and "paper" drills are conducted with local civil defense authorities.

9. Attleboro and North Attleboro fire chiefs have attended courses given by the Atomic Energy Commission on the problems of fire hazards in nuclear plants.

10. A speakers' bureau has been organized to address local groups to increase community understanding of the nuclear industry, of the company, its safety programs, etc.

11. An emergency public information plan is being readied based on the concept that in an emergency situation the public has a right to know the facts quickly.

12. Recently the company installed a radiation monitoring system even though high radiation is unlikely to occur in the plant. (A high radiation level is unlikely because uranium has a very low level of activity unless it is put together in such a mass as to fission.)

The radiation monitoring system sounds an audible alarm. On this signal, all employees would evacuate the plant and trained health and safety teams would go into action to pinpoint and correct the cause of the alarm. Tests of the system and drills conducted by employees have been very successful.

## The Future

Four areas which are now in progress to help increase the readiness of M & C Nuclear and Attleboro are:

1. Recording what reserve M & C Nuclear has in the way of special skills and equipment that could be made available to the city. For example, trucks, construction tools, operators of such equipment, and the like will be listed.

2. The organization of a mutual assistance program among other Attleboro industries. A second nuclear industry supplier is also located in the Attleboro area. Informal health-and-safety and security mutual-help agreements exist between the two firms. Mutual assistance plans will eventually include other non-nuclear companies in the city and in the surrounding communities.

3. The company will continue its cooperation with state officials and will take a more active public role when additional legislation (restrictive and/or beneficial) is considered. The company's aim is to help the state further develop an environment that will lead to the growth of the new industry with protection of the public health and safety.

4. Greater cooperation of company personnel with Civil Defense authorities will develop.

Since 1945 there have been only three fatalities which are attributable to radiation in the entire nuclear industry, employing in excess of 150,000 people. (None of these was at M & C Nuclear.) In comparison with other processing industries, the nuclear industry has an enviable safety record.

As each day passes in Attleboro, cooperative planning goes further and, as a result, the chances of survival in this atomic age climb for both community and company. Each stands ready to assume new responsibilities, confident that they have available, at a moment's notice, a competent ally and friend.

Things look good and are good in Attleboro. ◄◄

# No Insect Pests in Temple, Texas

In Temple, Texas, we believe that sanitation should include the elimination not only of harmful "micro-organisms," but also dangerous and annoying "macro-organisms" such as flies, mosquitoes, and other insect pests.

A survey in 1949 showed that this city has five creeks that are responsible for most of its mosquito breeding. So the Sanitation Department treats them with a creosote larvacide, applied in drip cans at the start of the mosquito season and continuing through the summer until cold weather. We also use Wyco Tossits which contain DDT and Lindane. These are very easy to apply.

## Complete Clean-Up

In addition, the Department insists on a complete clean-up of all fly-breeding places. It requires garbage containers to be covered at all times, and weeds to be cut so as not to shade the ground.

For those insects that escape this program, the Department attacks them with a Tifa fogging machine and a Dyna Fog unit, covering the entire city on the basis of once in every week.

The entire operation costs only $8,000 a year. The fogging material is mixed by our own men, using a finished spray of 5% DDT, plus a knock-down agent. We alternate with 3-5% Malathion and the knock-down agent to reduce the possibility of the insects developing immunity to the products.

J. L. Dill
*Sanitary Superintendent*

***Once a week in warm weather, foggers like this Tifa unit cover the city.***

*This view of the plant was taken prior to the latest addition. The plant is located on the shoreline of Lake George and uses lake water to cool the condensers.*

# Rates Go Down--Production Goes Up

## . . . as the Fairmont, Minn., electric plant maintains its long record of service to the customer and income for the city

By **B. L. WHITNEY,** Manager
Water & Light Commission, Fairmont, Minn.

The Fairmont electric plant has undergone steady growth since its original changeover to steam generation in 1920. Our latest addition, completed in 1959, consists of a 12,500-kw Westinghouse turbine generator and related equipment housed in a new addition to the plant.

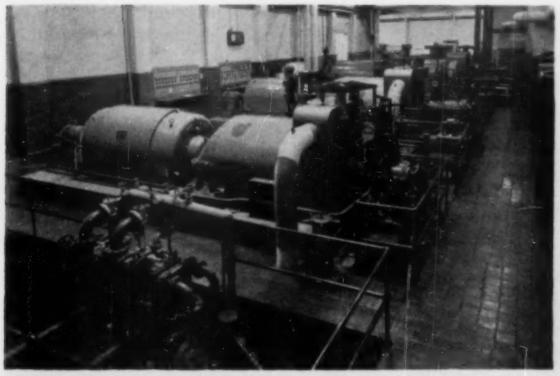
Other units now in use and their dates of installation are as follows:

**1,500-kw Westinghouse, 1935**
**2,500-kw Westinghouse, 1937**
**4,000-kw Westinghouse, 1945**
**4,000-kw General Electric, 1949**

All but the General Electric unit are extraction turbines, as the downtown district and the junior high school, located six blocks from the center of the business district, are heated by a central station steam system. The turbine generators furnish the steam used in this system. It is extracted at a pressure range between 5 psi and 7 psi gauge. Vacuum pumps located in the steam plant and also in several locations in the downtown district maintain a vacuum on the return system between six inches and ten inches of water.

### Steam Generation

For steam generation we now have two 80,000-pound boilers, one 60,000-pound boiler and one 40,000-pound unit, or a firm steam-pro-



*The four oldest generators occupy one room; they have a total capacity of 12,000 kw. The addition housing the new unit can be seen in the background.*

*Increased generating capacity made it necessary to install larger-capacity switchgear. This gear serves the four oldest units.*

ducing capacity of 180,000 pounds per hour.

The city took over the original plant, built in 1890 under private ownership, in 1902. This was a DC plant. It was converted to AC in 1903. By 1910 the plant consisted of one 55-kw, one 100-kw, one 165-kw and one 350-kw generator with a firm capacity of 315-kw. Reciprocating engines provided all the driving power until 1921, one year after the start of construction of the new plant.

## First Units

The first two units of the new plant were Nordberg Uniflow steam engines operating at 185 psi and driving generators rated at 350 kw and 750 kw. The city abandoned the old plant as soon as these two units went into service. The year 1929 saw the first addition to the new plant, a 1,000-kw generator powered by a Corliss compound engine installed for standby service.

In 1930 we purchased a 40,000-pound boiler designed to operate at 400 psi. Though it operated at only 185 psi for ten years, all purchases during that period were based on a final operating pressure of 400 psi. These purchases consisted of the 1,500-kw generator purchased in 1935 and the 2,500-kw unit purchased in 1937. Although both generators were designed for operation at 400 psi, they could also be operated at 185 psi, plant operating pressure at the time of purchase.

In 1939 we replaced the original two 365-hp boilers with a 60,000-pound unit built to operate at 400 psi.

Finally, in 1940, we changed the entire plant piping system and began operating at 400 psi with steam at 750°F total temperature. Future additions were based on this operating temperature and pressure.

By 1941 we felt the need for additional capacity and placed an order for a 4,000-kw unit scheduled for delivery in 1942. An interesting side light to this contract developed as a result of World War II. The generator had been shipped to our plant and was moved into the turbine room. After it was in our possession for only a few days the federal government confiscated the unit and according to our understanding shipped it to Russia under the lend-lease arrangement.

## Demand

Demand for electricity continued to increase until finally we received permission from the War Production Administration to construct a transmission line from our plant to the Interstate Power Co. substation at Blue Earth, a distance of about 20 miles. This gave us an auxiliary tie, providing power should something happen to one of our own units. This high-line, constructed in 1942, operated at 69,000 volts and was connected to a 3,000-kva transformer rated at 69,000/-2,400 volts.

Besides the addition of generators as previously mentioned, we added the first of our two 80,000-pound boilers in 1946 and the second one in 1951.

The first three generators now in use were purchased as 2,400-volt units, while the 4,000-kw General Electric unit was purchased as a 2,400/4,160-volt generator. In 1953 we installed a 3,750-kva bus-tie transformer from the Allis-Chalmers Manufacturing Company to tie the 2,400-volt bus to the 4,160-volt bus which was established in that year. We also cut the 4,000-kw G. E. generator over to 4,160 volts at this time and changed several of our old 2,400-volt circuits feeding the outlying areas of the city to a 4,160-volt system.

As the loads continued to grow we started engineering work on our latest addition and began placing orders in 1957. The new 12,500-kw maximum-rated turbine generator has a generator voltage of 12,-500 volts. Along with this contract went an order for a 12,000-square-foot condenser and auxiliary equipment.

## Other Purchases

Other purchases made by the Commission consisted of a 6,000/-7,500-kva bus-tie transformer and a 5,000-kva 69,000/12,500-volt transformer equipped with load-tap changing equipment from Allis-Chalmers of Milwaukee. The former was used to tie the old 4,160-volt bus and the new 12,500-volt bus together and the latter was used to tie the new 12,500-volt bus to the Interstate Transmission Line operated at 69,000 volts.

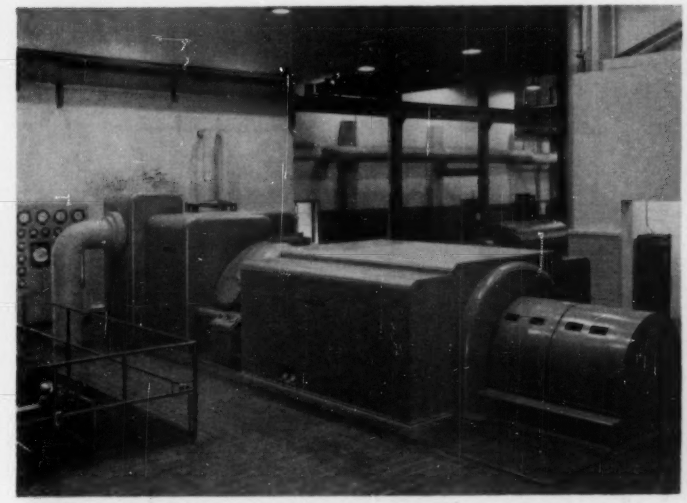
The original switchgear, installed

### Table I
**ELECTRIC RATES**

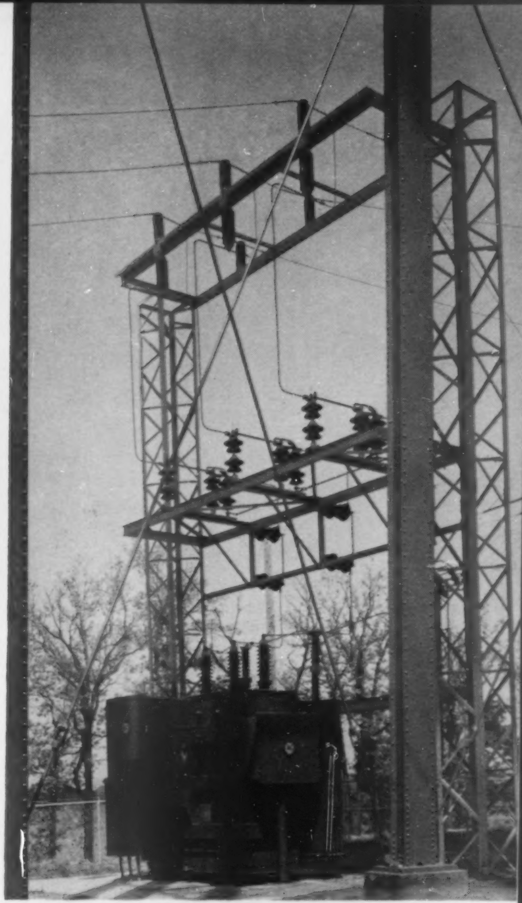
| | | | |
|---|---|---|---|
| ***Residential*** | | | |
| With electric range: | 40 kwh | —$0.0333 | Net |
| | 100 kwh | — 0.0222 | Net |
| | over 140 kwh | — 0.01666 | Net |
| Without electric range | 140 kwh | — 0.0333 | Net |
| | over 140 kwh | — 0.01666 | Net |
| Minimum Bill | | —$1.10 | Net |
| ***Commercial Light*** | | | |
| | 500 kwh | —$0.0333 | Net |
| | over 500 kwh | — 0.0222 | Net |
| Minimum Bill | | —$1.10 | Net |
| ***Commercial Power*** | | | |
| | 100 kwh | —$0.0444 | Net |
| | 900 kwh | — 0.0333 | Net |
| | 3000 kwh | — 0.0222 | Net |
| | over 4000 kwh | — 0.018 | Net |
| Minimum Bill | | —$1.10 | Net |

### Table II
**GROSS GENERATION BY YEARS**

| Year | Gross Generation kwh | Peak kw |
|---|---|---|
| 1921 | 1,800,000 | — |
| 1930 | 4,200,000 | — |
| 1936 | 5,500,000 | 1450 |
| 1940 | 10,825,500 | 3100 |
| 1945 | 18,500,000 | 4700 |
| 1950 | 32,870,000 | 7300 |
| 1955 | 45,008,000 | 9600 |
| 1959 | 58,372,075 | 12900 |



*The latest addition to Fairmont's electric plant is this 12,500-kw turbine generator.*



*Should the need arise, Fairmont may obtain additional electrical energy by means of this 5,000-kva, 69,000/12,500-volt substation tie with the Interstate Power Company.*

in 1922, was all rated at 50,000 kva. The added power made it necessary to change all of the 2,400- and 4,160-volt switchgear to larger capacity equipment. Thus, we changed all the 2,400-volt switchgear to 100,000-kva oil breakers and the 4,160-volt equipment to 250,000-kva switchgear. The new 12,500-volt switchgear is rated at 500,000 kva.

## New Generator

The new generator is housed in a building addition erected by Bosshart Construction Co. of Truman, Minn. Our own construction and maintenance crews handled all electrical work in the plant as well as the installation of the new switchgear and replacement of the old equipment. Our own men, working under the supervision of a Westinghouse Electric Corp. engineer, also installed all the piping of the turbine and condenser.

The Ellerbe Company of St. Paul handled the architectural design of the new addition as well as the design of the piping and electrical equipment installation. Johnson & Lightowler of Fargo, N. D., with the assistance of the writer, made the original report on the project.

The plant structure, including a 20-ton capacity Manning, Maxwell & Moore bridge crane, came to $150,356.58. Installation of the prime movers and auxiliary equipment amounted to $849,829.72 and another $216,425.93 was spent on installation of new and replacement of old switchgear. The transformers cost $108,196.68 and miscellaneous work came to $72,760.27. The total expenditure amounted to $1,397,515.18. Financing was made from cash on hand plus a 20-year, one-million-dollar revenue bond issue at a net interest cost of 3.664%.

## Operating Figures

Operating figures of interest for the year 1959 are as follows:

**Cost per 1,000 pounds of steam—$0.43098**

**Cost per kwh gross for fuel — $0.00499**

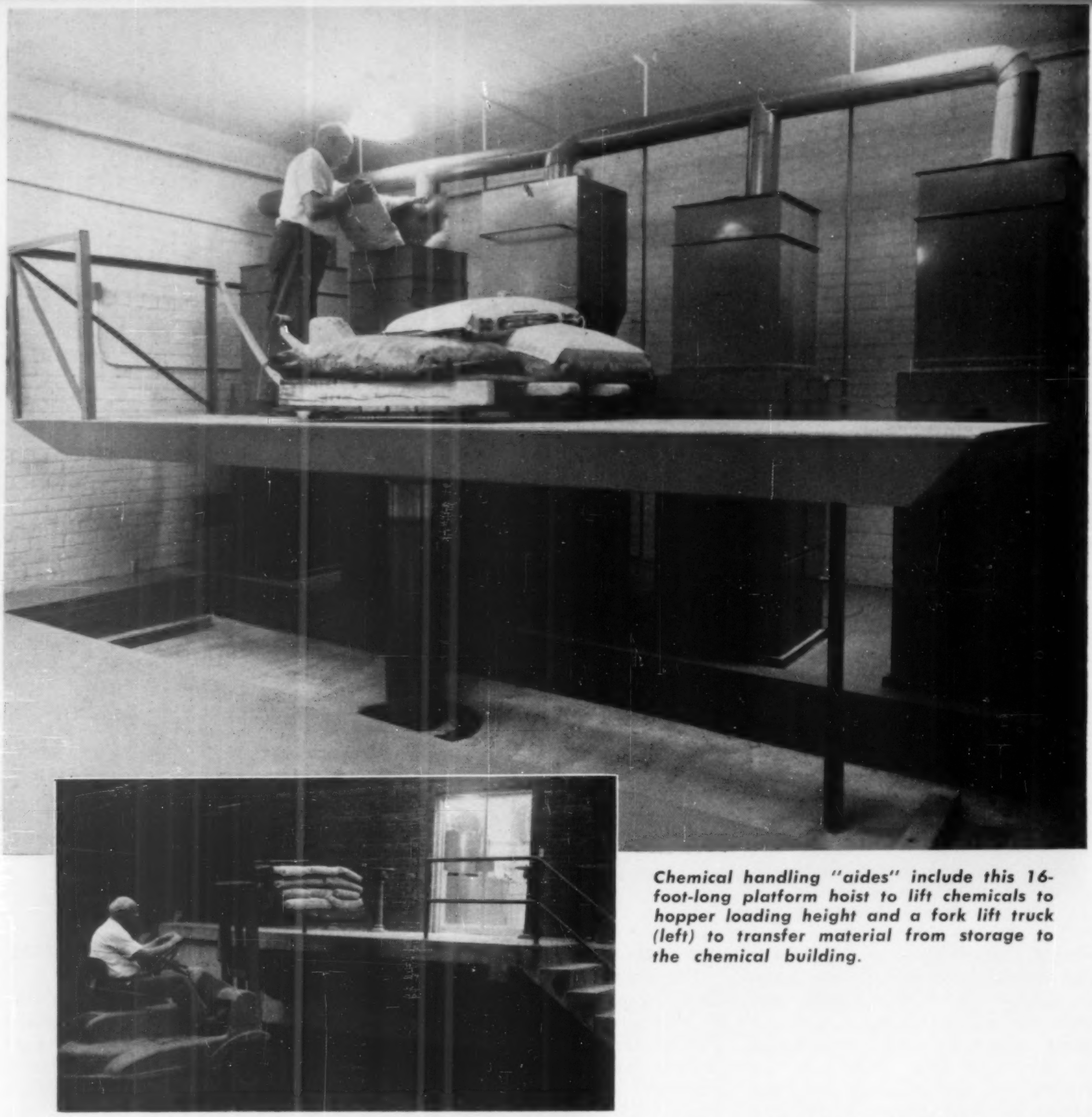
**Total plant cost, including maintenance, supervision, fuel, bond interest, depreciation and operation labor — $0.00842 per kwh.**

**Total cost per kwh, including general office cost, line maintenance, depreciation and interest, is $0.01125.**

During the entire history of the plant no taxes have been assessed against property owners in support of the plant. Rather, the Water & Light Commission has maintained a consistent record of reduced rates and at present we have the lowest rates for residential and commercial service of any city in the state with the exception of Rochester.

In addition, we have paid to the city in lieu of taxes $880,672.38 from 1950-1959 and between 1933 to 1949 inclusive paid to the city another $446,000, for a total of $1,326,672.38.

The citizens' equity in the plant increased by $1,565,717.81 in the past ten years. Total equity as of the end of 1959 amounted to $3,957,670.54. Capital expenditures over the past ten years amounted to $3,465,206.39 with only $1,000,000 borrowed to augment cash taken from the Commission money to accomplish the work. This, we feel, is an enviable record. Table I lists a portion of our rate schedule; Table II indicates increased demand for electric power over the years. ◄◄



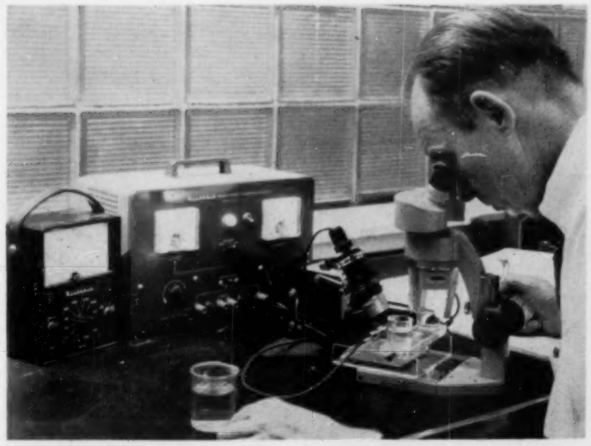
*Chemical handling "aides" include this 16-foot-long platform hoist to lift chemicals to hopper loading height and a fork lift truck (left) to transfer material from storage to the chemical building.*

### Waterford, N. Y., gets a high-quality finished water from a badly polluted raw-water source by building . . .

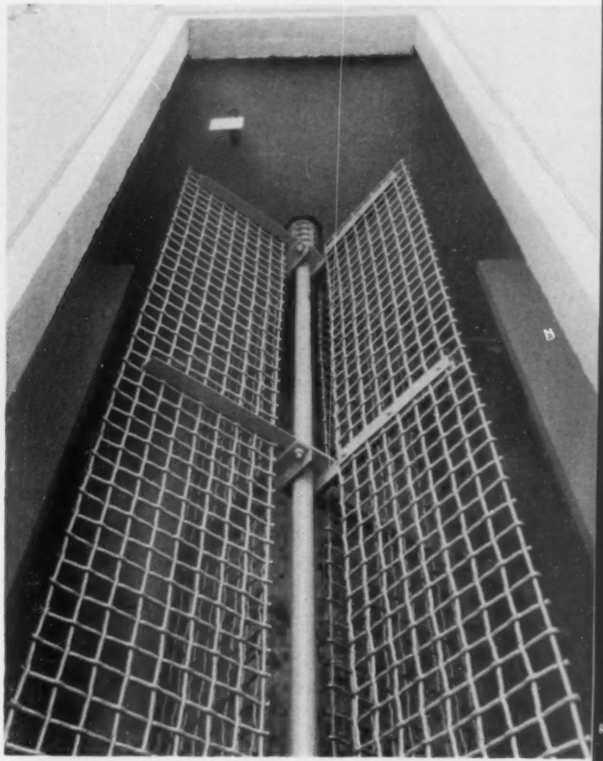
# The First Zeta Potential Water Purification Plant

Waterford, N. Y., has what is probably the only water works in the nation, and perhaps the world, designed and operated on the basis of continuous control of the Zeta Potential. This will permit the new plant, designed by Thomas M. Riddick & Associates, of New York City, to produce a first-quality water at rates at least 50% greater than its nominal design of 2,000,000 gallons per day, under any condition of raw-water quality.

The city's source of water is the Hudson River, badly polluted at this point by the discharge from about 16 pulp and paper mills, several textile mills, a number of industrial plants, and a substantial amount of untreated domestic wastes. The old plant, designed to conventional standards, could deliver no more than 50% of its rated capacity because of the pollution



*With the equipment shown here, one can determine the Zeta Potential in approximately five minutes. Equipment includes a steroscopic microscope and clear plastic electrophoresis cell.*



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*Wire-mesh flocculators add speed and efficiency to the flocculation process. The plant has three bays of dual flocculators with progressively decreasing degrees of agitation.*

load and the inability of conventional treatment processes to remove it.

The Zeta Potential is a measure of the electrical charge on the surface of organic and inorganic colloids, as well as larger particulate matter, including silt and floc in all stages of formation and growth. If these charges are alike, either positive or negative, then the particles (whether they be raw-water colloids or floc) repel each other. If these charges can be lowered to near the zero point, repulsion is reduced and allows the forces of cohesion, adhesion and mutual attraction to take over, thereby making possible enmeshment of the raw-water colloids in the floc and subsequent removal by sedimentation and filtration.

The Zeta Potential is easy to determine. It can be measured accurately by a newly developed electrophoresis cell, employing a stereoscopic microscope. The test requires about five minutes.

## Components Described

To understand how the present plant purifies the water using this method, the various components should be described. The plant draws water from the river, through a new 18-inch intake line that extends 175 feet from shore. This intake has a stainless-steel well screen which may be backflushed at high velocity with water from the sedimentation basins in order to clean it.

The operators can chlorinate the water as it enters the plant at a point near the suction of the low-service pumps, thus providing the advantage of an instantaneous mix. There are two of these raw-water pumps, one rated at 2.0 and the other 2.75 mgd.

Chlorine also can be pre-mixed with coagulating chemicals at the new chemical-feed building to effect partial control of the Zeta Potential of the floc. The normal dosage of chlorine will be 2 to 5 ppm but dosages of 12 to 18 ppm may be employed for direct oxidation of organics.

The water will then flow from the pumps through a venturi meter to the aeration basin. Here a float-operated butterfly valve regulates the raw-water input to the exact rate of filtration.

At this point, the operators add 1 to 2 ppm of activated carbon to inhibit septic action in the settled sludge and this is followed by aeration employing Carborundum diffuser tubes. Since the chemical-feed building is located over the aeration basin, a 24-inch downdraft fan was installed to supply fresh air to the water surface to remove odors liberated by the submerged air diffusers.

The water then flows to the rapid-mix chemical basin, where compressed air agitates it violently. This basin is long and narrow, with a 20-foot section at the effluent end divided into two equal and parallel compartments by a partition wall. Many types of treatment can be provided, including the following:

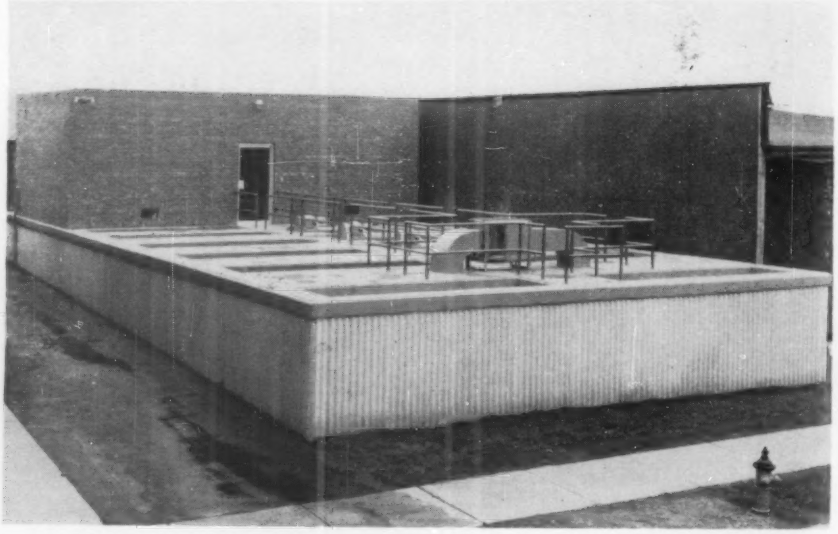
**a) applying a partially pre-reacted dosage of alum and calcite ahead of the dividing wall.**

**b) adding the entire coagulant dosage to half the total flow, producing an excess of unreacted aluminum ions.**

**c) inducing formation of normal electro-negative alum floc in one section, and electro-positive alum (or ferric) floc in the adjacent section by adding a suitable polyelectrolyte.**

**d) adjusting the Zeta Potential by a polyelectrolyte applied at the end of the rapid-mix section.**

Since many of these chemical reactions take place in seconds, the



*At the Waterford plant, the chemical-feed building is located above the aeration and chemical-mixing basins. Flocculation basins are in the foreground, with sedimentation basins beneath the entire structure.*

designers carefully provided multiple points along each channel where the chemicals may be introduced. The judicious application of silicates or of long chain polymers will control the molecular or physical structure of the floc. Activation of silica will be principally effected by chlorine and certain inorganic trace elements may be applied to produce a more adsorbent floc. The operators may also apply weighting agents after floc particles have developed to a size sufficient to enable their absorption by mechanical enmeshment.

Three flocculation bays, in duplicate, gently agitate the water for 23 minutes, using Link-Belt equipment revised to Mr. Riddick's design. As in the Wanakah, N. Y., plant (THE AMERICAN CITY, March 1960, pp. 89-93, "Twice the Plant for Half the Money"), these flocculators employ Mr. Riddick's patented wire-mesh paddles instead of the conventional wood slats.

## Floc Feed-Back

Following flocculation, the water flows into the upper section of a two-tiered sedimentation basin, then through the lower section, then into the old sedimentation basins and then to the filters. At the end of the upper tier, approximately 20% of the heavily flocculated water returns by air-lift to the entrance flume for the first of the flocculation bays.

This feed-back furnishes nuclei on which the new and freshly-forming floc can build, materially reducing the coagulant dosage. Mr. Riddick's firm developed and patented this process, and first employed it in the Oneonta, N. Y., plant (THE AMERICAN CITY, November 1957, p. 99).

The filters employ Filtration Equipment asbestos-cement bottoms, covered with 14 inches of graded gravel and 18 inches of sand. Palmer rotating filtersweeps inhibit mud-ball formation.

Aerating the water in the clearwater basin reduces carbon dioxide formed by reaction of the coagulants and mixes rapidly the soda ash added for corrosion control. Also to inhibit corrosion, to furnish chlorine for secondary sterilization, and to improve molecular and/or physical structure of the floc, the chlorine-activated sodium silicate was split at the new chemical feed building, one-fourth to one-half being applied to the water in the rapid-mix basin and the balance to the clearwater basin. When using heavy dosages of primary chlorine, the operators will also add sodium metabisulfate to reduce chlorine residuals of the plant effluent to about 0.5 ppm.

"Although based on continuous control of the Zeta Potential*," Mr. Riddick states, "there is nothing complex in either the design or the treatment processes of this plant. We believe that fundamental principles of physical (rather than classical inorganic) chemistry are necessary for the treatment of difficult or highly polluted raw waters, so we designed the plant accordingly. In many respects the treatment processes represent an attempt to purify polluted raw water by *chemical* methods, in a manner similar to the *biochemical* processes we believe nature employs in converting the deep seepage of polluted river waters to high quality subsurface supplies."

The operators maintain principal control of the plant by push-button stations located on a central control panel. This panel also contains all essential instruments.

It is the designer's opinion that the rapid degradation in recent years of many surface water supplies by domestic and industrial wastes require re-evaluation of the treatment process. He feels that conventional treatment methods are often unable to cope with many polluted waters, as well as unpolluted supplies when algae and weed growths are rank.

## Object of Control

The object of controlling the Zeta Potential and improving molecular structure is to produce an alum and/or ferric floc which will adsorb, enmesh and remove far more organic colloids than is possible with the standard coagulation practice.

Conventional treatment does not, in the designer's opinion, adequately remove these colloids which are a major source of tastes and odors in many finished waters. He holds that since mechanical straining cannot remove particles of this size

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* The basic processes at the Waterford Plant are being patented by the designer's firm.

(generally considered to range from about 100 angstrom units to one micron) a highly absorbent floc must be produced that will enmesh them for subsequent removal by means of sedimentation and/or filtration.

### Electrical Charge

The major reason for suspension of the colloids is the electrical charge on the surface of the particle; if all colloids possess a like charge, a state of mutual repulsion exists. Practically all colloids in normal stream or reservoir water are negatively charged and, generally, so is the conventional alum floc. Thus, the floc per se not only has the tendency to resist agglomeration and remain dispersed, but also to repel the negatively charged raw-water colloids.

On the other hand, the consultant believes that a highly effective floc can be formed if the electronegative charge of its particles can be reduced from about 15-30 millivolts to near zero and if appropriate chemicals are added to improve molecular and/or physical structure.

### Zeta Potential

The Zeta Potential is simply a measure (in millivolts) of the electrical potential existing between the outer and fixed layer of counter-ions surrounding the colloid, and the bulk of the liquid in which the colloid (or alum floc, or other particulate matter) is suspended. Thus by measuring and controlling the Zeta Potential, one can reduce (or virtually eliminate) the repelling electrical forces which prevent the raw-water colloid from being enmeshed in the floc. When these forces are sufficiently lowered to permit the colloid and the floc particle to approach one another to distances as close as perhaps a few angstrom units, natural forces of molecular attraction can then come into play and aid this union. The forces of cohesion and adhesion then result in the colloid becoming firmly attached to the floc particle, which is subsequently removed by sedimentation and filtration. The function of the wire-mesh flocculators is to increase greatly the number of impingements of particles of floc with similar particles of floc, as well as to greatly increase the number of impingements of colloidal particles with the floc particles.

Research indicated that the organic raw-water colloids were the principle (substantially complete) sources of tastes and odors and that, if these colloids could be removed, the tastes and odors would also be removed. The validity of these findings was demonstrated when the Waterford Plant was placed in service for, during the initial test runs, it was alternately operated with and without Zeta Potential control. With standard treatment (coagulating with alum) colloids passed through the plant and filters, as demonstrated by a new stereoscopic microscope technique. When Zeta Potential control was employed, the colloid content of the filter effluent approached that of distilled water. The source of these colloids was domestic and industrial wastes.

The Waterford plant was designed and its treatment processes selected on a basis of colloid removal by means of continuous control of the Zeta Potential of the floc.

The treatment processes and the chemicals employed were also designed to produce a floc of appropriate molecular and/or physical structure which would have the desirable properties of high absorption, quick formation, toughness, reforming ability, and quick settlement. ◄◄

## Simple Record of Motor Boats

A startling increase in outboard boat traffic has brought a startling increase in accidents. In Sacramento alone there are 8,500 outboards registered now. We have close to 6,000 more just in Contra Costa County, here in the Bay area.

To exercise tight control over the registration of outboard motor boats in the Bay area, the San Francisco County Assessor's Office put into effect a simple record-keeping system housed in two Remington Rand Aristocrat Kardex cabinets.

When we are notified that a certain person owns an outboard, we send him a postcard to fill out and return. The top part of the card contains the builder's name and address, type of boat, cost, new or used, dimensions, year built, construction material, make, serial number and horsepower of engine, etc.

The lower half of the card is used entirely for the assessed-value figures, the year, and whether or not the fee has been paid by the owner.

All information regarding a specific boat and its owner is in a single Kardex pocket. When the card is returned we give the boat a number which must be put on both sides of the bow of the boat. The information given on the postcard is typed onto a Kardex card.

CAPT. ARTHUR P. JONES,
*Supervisor*
*Marine Division Assessor's Office*
*San Francisco, Calif.*

***When the United States Coast Guard asks for information about any of the thousands of motor boats in the San Francisco Bay area, Capt. Arthur P. Jones gets it quickly from his Kardex file.***

*From February 21st to March 14th, 1960, Alton, Ill., received the unprecedented amount of 32 inches of snow; two single storms brought six-inch and seven-inch falls.*

# Thirty-Two Inches In Twenty-Three Days

## . . . or how Alton, Ill., combatted a most unusual snow storm

By **GRAHAM W. WATT**
and **GUY M. FAIRFIELD***

Alton's latitude is roughly that of Richmond, Va., and we are not far from the cotton fields of Missouri and southern Illinois; consequently heavy snows are a rarity. In fact, Alton has but one snow plow, purchased last fall, and is equipped with only three salt spreaders. Thus we are not properly equipped to handle a storm seige like the one that started on February 21st with a snow fall of 2¼ inches. This we were accustomed to, but no one predicted the events of the next several weeks, summarized in our municipal diary as follows:

**Feb. 21—Accumulation to 2¼ inches**
**Feb. 23—Snow started in late afternoon**
**Feb. 24—Accumulation to 2 inches**
**Feb. 25—Another 3-inch snow fall**
**Feb. 27—Snowing**
**Feb. 28—An additional 2½-inch fall**
**March 2—3¼ inches by 7:00 A.M.**
**March 3—Storm ended 9:00 A.M. —6 inches added**
**March 6—Snow started at 6:50 P.M.**
**March 8—More snow**
**March 9—7 inches by 7:00 A.M.**
**March 10-11—Snow**
**March 12-13—Very cold**
**March 14—Snow**
**Total accumulation during this period—32 inches**

Alton is an industrial city of some 16,000 workers, practically all using private cars as a means of transportation. One federal and several state highways traverse the city. The location of the city on the east bank of the Mississippi River adds to the problem, for street elevations range from 350 feet to 600 feet above sea level and many of our streets have extremely steep grades.

U. S. Route 67 is our most important traffic artery, coming from the north down steep hills and passing through the business district and serving our largest industries. A tie-up on this route affects truck traffic, the business district, and the major route for most workers. Next in importance are the several state routes and there are numerous important city thoroughfares to be kept open at all times.

### Salt

On these streets salt is our mainstay, and to apply it we use two Tarco Scotchman spreaders and one Baughman unit mounted on a 1½-ton truck. One of the two smaller units is mounted on a half-ton pick-up truck and the other is installed in the rear of a converted bus. The pick-up truck holds about 15 bags of salt while the bus unit can carry about 50 bags. A big advantage of the bus is that the

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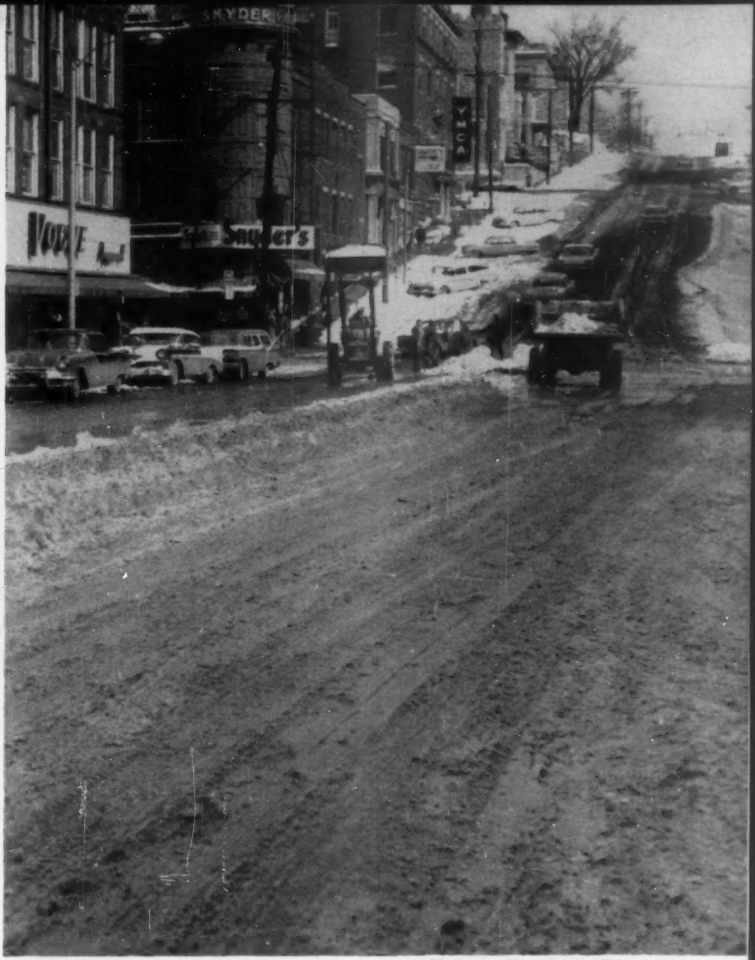
* Mr. Watt is City Manager of Alton, winner of the 1960 All America Award, and Mr. Fairfield, acting as city engineer at the time of the storm, is now Assistant City Engineer.

***Although some cinders are used, salt is the mainstay of Alton's ice-control program. Authors Watt and Fairfield believe extra spreaders should be on hand to be substituted for units in need of repair during operations.***



***Alton finds it advantageous to plow snow to the center of the street wherever it is to be removed.***

**Photos by Alton Evening Telegraph**

men are sheltered from the weather.

During the storm we also used bulk salt, spreading it with the truck-mounted spreader. However, we experienced trouble from caking and could not regulate the rate of spread as closely as desired. As soon as we had used all of the bulk salt on hand we put this machine to work spreading the cinders that we need.

In our particular situation, cinders cannot be entirely replaced by salt. They are especially valuable on the steep hills, where they are used straight or, in some instances, mixed with salt. Also cinders come in handy in the hilly residential areas and in those areas having only surface drainage of storm water. These streets are not traveled enough to make salt spreading worth while.

## Spreading Cinders

To spread the cinders we used the large truck-mounted spreader together with one truck with a 15-yard body. Hand spreading of cinders from several dump trucks was needed on a number of "trouble-spots," principally steep grades on truck routes.

## Plowing

Plowing is minor but in the case of this storm we did put our one plow to work and also used one city-owned and one leased grader. In most cases we found it advantageous to plow the snow to the center of the street rather than to the sides wherever snow was to be removed. The graders handled this work while our one plow cleared intersections and handled odd jobs such as side streets in the residential area.

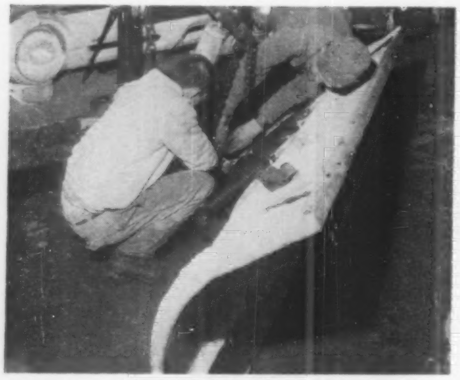
Salt spreaders followed the plows to complete removal of all snow from the traffic lanes. Again, cinders were used in certain locations.

Snow removal, like plowing, is a rarity but with this storm it became necessary in the business district and on principal thoroughfares. The city's Caterpillar and Oliver front-end loaders participated in this work.

Twenty-one men from the street, sanitation and sewer divisions took part in the snow-removal and ice-control operations during this lengthy storm period. They worked under the direct supervision of the street superintendent and later the sewer superintendent when the former fell and broke his leg during one of the storms. The cost of labor, including overtime, came to $4,754.38.

Equipment rental (applied to city-owned equipment) amounted to $3,372.80. This included the use of one grader, two front-end loaders, three pick-up trucks, three dump trucks, the large cinder truck, a larger spreader truck and the converted bus. In addition we hired trucks and loaders to assist with snow removal.

Materials used consisted of 105 tons of salt in bags, 97 tons of bulk salt, 6½ tons of calcium chloride (used during the very



*City employees make adjustments to Alton's only plow.*

cold days), and 250 cubic yards of cinders.

Although sack salt is more expensive than bulk salt, we found it much easier to handle and easier to control as to rate of spread. Last winter was our first experience with bulk salt and more experience should bring about some improvement.

### Spreaders

Since we rely heavily on the use of salt, spreaders are a key item. Because of the abrasive action of salt, spreaders are prone to get out of order and a breakdown of even one spreader during a storm can mean trouble. Standby spreaders should be available so that crews and trucks need not be idle while repairs are being made. The mechanic can pull the faulty spreader, mount the standby, and work can proceed while the first spreader undergoes repairs.

As previously mentioned, experience on some of our steep street grades indicates that salt alone is not the answer. When the snowfall exceeds two inches or when temperatures are low some abrasive such as cinders or sand is needed to provide traction and speed the melting action of salt.

A good communication system is vital. We do not have two-way radio in our trucks, but when the storm broke a new police car, not yet turned over to the Police Department, had already been delivered to the city garage.

This car was put to use to coordinate the snow and ice control operation, with the operator reporting back to the garage via radio and a monitor speaker installed in the garage office. To talk to him, personnel at the garage phoned the Police Department who then relayed the message by means of their radio.

By next winter we will have two-way radios installed in key trucks of the street and sewer division and at the garage.

Finally, a definite plan must be followed to avoid duplication of work and wasted effort. For the city that experiences several storms every year, such a plan can be revised constantly and may even become a matter of habit. However, for cities on the outer edge of the snow belt that may go through several winters without being hit by a severe storm, snow fighting can become virtually a forgotten subject. Thus a special effort should be made to review the plan each fall and discuss it thoroughly with the personnel—especially the new employees.

The net result of our efforts was that arterial streets were kept open and at no time was a street "lost" by the city's workers. ◄◄

## How Metropolitan Winnipeg Will Function

Winnipeg is the second metropolitan area in Canada to use a "Metropolitan Corporation" to serve its urban areas beyond the limits of Winnipeg proper. Its governmental structure, established by the Province of Manitoba, is somewhat different from that of Metropolitan Toronto.

The bill establishing this area-wide government provides for ten members on the elected council, elected for four years. These members are elected from zones that do not coincide with present municipal boundaries but will be on the basis of population. The Provincial Lieutenant Governor will have the responsiblity of redistricting as the need arises.

The Provincial Government will appoint the first chairman of the metropolitan corporation. However, at the second election, the councillors elected will elect their own chairman.

The new metropolitan corporation will gradually assume responsibility for those activities that can be shown to have an area-wide effect. At present, they include such activities as

**Assessment, planning, arterial roads and bridges, traffic regulation, transit facilities, water supply (not including local distribution), sewage disposal (not including local sewers), garbage disposal (not including collection), major parks, flood protection, civil defense, river control, and mosquito abatement.**

### Assessment

Centralized assessment and valuation of property permits the metropolitan government to apportion its costs evenly among the area's various municipalities. The metropolitan government will meet its financing costs through three sources of funds; direct fees and charges; commercial, industrial and business tax revenues of which it will receive a portion from each of the member municipalities; and direct levies on each municipality in the proportion that the assessment of that municipality bears to the assessment of the total metropolitan area. Transit, water and sewer service will earn their incomes through rates and charges made against the municipalities enjoying the service.

The Corporation will have the power to borrow but will not be required to present the proposals to the voters. All that will be required is a vote of approval by the councillors.

The municipalities within the metropolitan corporation, while still possessing the financial structure and powers that they have at present, will be asked to refer their proposals to borrow to the metropolitan corporation. At such a time, the Council will have an opportunity to discuss features of the financing which may be inharmonious with the general needs of the area.

The election of the first Council will take place in October of this year. ◄◄

***Heavy northbound traffic approaches the Mystic River Bridge during the evening rush.***

***The Central Artery cuts through downtown Boston, passing the Customs Building.***

***A rush-hour view looking south from North Station; a Forest Hills-bound MTA train enters the subway (right).***

# Already Overloaded

By **PAUL E. McBRIDE,** Urban Development Department
Greater Boston Chamber of Commerce

The Boston Central Artery, officially named the John F. Fitzgerald Expressway, was opened to traffic a little over a year ago.

The length of the artery from the Mystic River Bridge in Charlestown to the Southeast Expressway in South End is 3.8 miles. Automobile trips between these two points over city streets formerly took up to 30 minutes. Now they take only six to seven minutes.

The total cost of the expressway (in excess of $110,000,000) probably makes the Central Artery the most expensive highway in the country in terms of cost per mile.

The route removed $20,000,000 in assessed valuations from the city's tax rolls. This loss in assessed valuation should be more than compensated by future development adjacent to the highway.

The new 16-story Travelers Insurance Co. Building, which will serve as the home of the Greater Boston Chamber of Commerce is an example of the type of development encouraged by the Central Artery.

Although the Central Artery is six lanes wide and is called an expressway, the fact that there are thirty-four on and off ramps over a relatively short route would make accepted expressway speeds dangerous. This large number of ramps was designed to make as many areas of downtown Boston directly accessible to the artery as possible.

The posted speed limit on the artery is 35 miles per hour, twenty miles per hour less than the speed limit on the new Southeast and Northeast expressways.

## Traffic Volume

When the artery was designed in 1948 the traffic engineers believed that the highway would be adequate to carry traffic volumes at the levels expected in 1970—or 90,000 vehicles per day. The day the final section of the artery was completed it carried over 100,000 vehicles.

Why? First of all, the tremendous postwar increase in automobile ownership and travel has far exceeded the most optimistic guesses. Secondly, the original estimates assumed that the area's mass transit facilities would be expanded.

Unfortunately, the opposite has occurred. The commuter railroads have curtailed or abandoned significant portions of their service and the MTA facilities have remained relatively static.

If the Central Artery is to perform its proper functions during the next generation action must be taken on two specific fronts:

***First:* The remaining portion of the Inner Belt System joining the two ends of the Central Artery must be constructed.**

***Second:* The rapid transit system from downtown Boston to the suburbs must be extended.** ◄◄

*The old plant section consists of two-stage clarification with single-stage filtration. Pictures were taken during final stages of construction after a heavy rain.*

*The existing Parshall flume, grit chamber and pump station serve both the old and the new sections of the plant. The new secondary filter is in the foreground.*

### Elizabethtown, Ky., doubles its sewage treatment capacity by adding sufficient new units to provide . . .

# Two Plants at One Location

By **C. A. OUELLETTE**
City Engineer

With the additions to our sewage treatment plant completed, Elizabethtown now operates what might be called two plants in one. The old plant or section consists of two-stage clarification and single-stage filtration, while the new section is based on the use of a Dorr bio-filtration plant using two-stage series operation with recirculation. Each section is rated at 0.5 mgd and can be operated as an independent unit. Only the grit chamber and chlorine contact basin serve both plants. The new addition was made as similar to the present plant as practicable for ease of operation.

Raw sewage entering the plant through two 15-inch-diameter sewers passes through a Parshall flume and then into a ten-foot-square Dorr Detritor rated at 4.0 mgd. Excessive infiltration in the sewer system makes necessary such a large unit. A Builders-Providence indicating, recording and totalizing instrument connected to the Parshall flume measures incoming sewage.

Effluent from the grit chamber then passes through two 15-inch Worthington comminutors and discharges into the plant wet well. Here the flow is divided into the two separate plant sections.

## Separate Pumps

The flow is split by using separate pumps for the old and new sections. Two remodeled existing pumps, one rated at 300 gpm at 13.5-foot head and the other at 350 gpm against a 10-foot head serve the existing plant. A new 700-gpm pump and an existing 700-gpm unit at 13.5-foot head serve the new plant. In addition, the pump station contains a 3,500-gpm unit that operates during periods of storm flow. This pump discharges directly into the chlorine contact chamber, by-passing all other portions of the plant. All are Fairbanks, Morse units controlled by an Automatic Control Company float-control system.

The sewage in the old plant passes first through a mechanical aerator for grease removal and then to the primary clarifier. From here it flows by gravity through the two trickling filters to the wet well of a second pump station where two 750-gpm pumps lift it to the secondary clarifier. It then flows by gravity through the chlorine contact chamber and finally discharges into Valley Creek.

The two filters operate in parallel with a splitter box dividing the flow between the two units. Recirculation is provided by allowing part of the secondary clarifier effluent to flow back to the second pump station wet well.

The aeration tank serving the new section consists of an American Well Works grease flotation unit having a two-minute detention period at 1.0 mgd. The 13-foot-square tank, having a 10-foot water depth, contains a 2.0-hp mechanical aerator and two rotary skimmers located on opposite sides of the tank. After aeration, the sewage flows by gravity through the primary clarifier and primary filter to the wet well of a second pump station. Here two pumps having capa-

***The new section provides primary and secondary clarification and filtration. Shown here is the aeration tank primary clarifier.***

→

***A new chlorine contact basin (center) serves both plant sections. Plant effluent flows into Valley Creek (left rear).***

cities of 750 gpm at 17-foot head lift it to the secondary filter where gravity flow again takes over through the filter, secondary clarifier and chlorine contact chamber. Allowing a portion of the secondary clarifier effluent to flow back to the wet well of the plant pump station provides recirculation.

Unit sizes and design data are:

**Primary clarifier—40-foot diameter, 10-foot water depth. Overflow rate is 800 gallons per square foot per day, detention time at design flow, 2¼ hrs.**

**Secondary clarifier — 40-foot diameter, 8.0-foot water depth. Overflow rate same as primary; detention, 2 hrs.**

**Primary and secondary filters—40-foot diameter; dosing rate 17.5 million gallons per acre per day.**

**Chlorine contact chamber—20 feet long by 15 feet wide with water depth varying from 6.0 feet to 6.5 feet. The tank serves both plant sections and provides a 20-minute contact period at 1.0 mgd. One Wallace & Tiernan chlorinator is available for chlorinating plant effluent.**

Design of the sludge handling system was based on using the existing digester as the secondary tank and the new digester as the primary tank. The two tanks are each 30 feet in diameter and about 22 feet deep, providing a total volume of 27,000 cubic feet.

Only the primary tank is heated. The system consists of the existing 264,000-BTU Bryant gas-fired boiler and a Dorr-Oliver spiral heat exchanger. A 3-inch Wemco pump rated at 75 gpm at 20-foot head circulates the digester contents through the heat exchanger. The new digester has a fixed cover while the existing unit has a floating cover. DeZurik plug valves are used throughout the digester piping system.

Area of the sludge drying beds has been doubled, providing a total of 15,000 square feet or 1¼ square feet per capita for the expected 1975 population of 12,000 persons.

The project also included construction of approximately 10,000 feet of 15-inch-diameter sewer to provide a new outfall line to the plant.

All plant additions, designed by J. Stephen Watkins, consulting engineers of Lexington, Ky., and Robert E. Martin, consulting engineer of Louisville, Ky., cost approximately $265,000, exclusive of engineering. We invested another $57,500 in the new outfall line.

The plant design is based on a flow of 1.0 mgd, sufficient to serve the expected 1975 population of 12,000 people. At present the plant serves about 9,500 people. Another 500 will be added toward the end of this year when we complete installation of sewers in the last subdivision of the city not now having this service.

To finance the plant, the city issued $276,000 in revenue bonds at 3¼% interest for 20 years. We also received about $96,000 from the federal government under Public Law 660. To pay off the bonds and operate the plant the city imposed a sewer service charge amounting to one third of the water bill.

All work was done under the administration of Mayor Leonard T. Bean. The writer as city engineer is responsible for the operation and maintenance of the plant. ◄◄

*Every home, business institution and industry receives an annual fire inspection visit to prevent fire hazards.* →

# Good Administration Must Show Results!

## How Covina, Calif., provides its people with measurable benefits

**By NEIL GOEDHARD**
City Administrator

There is no use talking about good municipal management or administration in generalities. Mr. and Mrs. Citizen, enjoying the opportunity to live in a democratic society, are very practical in their approach to local government. They want positive achievements that they can see and recognize. As administrators, responsive to their wishes, we try to provide them.

For example, in Covina, a city of 20,000 population, *every* home, business, institution, and industry, receives an annual fire company visit to prevent fire hazards. We do this as diplomatically as possible and the reaction has been good. This favorable attitude has been assisted by a drop in our fire insurance rates because the fire-rating class has improved from 6 to 4. Our per-capita fire loss has been reduced from $0.62 in 1955 to $0.45 last year.

Also, when Mr. Citizen goes downtown, he finds three times the public off-street parking formerly available to him in the central business district. He finds new traffic signals at 13 intersections to protect him. He also sees attractive modern street name signs installed at all intersections.

If he travels at night, he finds 85% of the city illuminated by 1,237 modern street lights. During his visits around the city, he will note a regular program of street-tree pruning and maintenance.

His wife will notice that city refuse crews collect rubbish once a week, instead of twice a month as had been the practice in the past. She will note that public library hours have been extended, that the library has acquired 12,500 new books, and that her youngsters now enjoy a children's department in the library. The entire family appreciates the periodic protection checks of homes by police during periods when they are away on vacation.

The entire municipality cannot help noticing the substantial reduction, almost elimination, of juvenile misbehavior, as a result of the forthright policy that the city has adopted. On a juvenile's first arrest, the city requires the parent to come to the police station to learn of the event and to sign a statement prior to release of the juvenile. A second arrest requires court appearance of the parent with a resulting $25 fine. In two years since adoption of the new policy we have had only three repeat cases.

### Organization

Behind these achievements is a big program of organization detail. Let us take finance, for example, since this is a most sensitive part of local government. Covina now has a centralized finance and accounting department under a professional director. This department cares for all water utility billing, municipal accounting, and licensing.

In addition, this department helps us with an extensive system of performance reporting that goes to the City Council on a monthly basis. This gives an accurate picture of how the city is performing within its budget.

We have established a full-time planning department, organized with appropriate staffing. This enables us to anticipate intelligently the problems that will face us in the future.

Replacing a department composed of part-time building, electrical and plumbing specialists, we now have a professional Building Director who directs a general building-inspection program.

An integrated Park and Recreation Department with a full-time director has been created. Under his supervision is a 50-citizen Covina Concert Band, recently sponsored and supported by the city.

### Municipal Engineering

We have organized a Public Works Department to administer the activities of the Engineering, Water, Street and Sanitation Divisions. The department has a program of preventive sewer maintenance to eliminate costly emergency repairs under a contract arrangement. It also has specialized in two-man crews organized by the Street Division to concentrate on tree-maintenance, sidewalk repair, and street patching.

A centralized equipment pool has been developed to "rent" equipment to the various departments. A revolving fund is maintained so that this organization can replace equipment as well as maintain it on an orderly basis. A late evening shift has been originated in the equipment maintenance division to concentrate on preventive maintenance and keep equipment rolling during regular working hours.

We have established a centralized mail and messenger service to insure prompt interdepartmental communication. All filing procedures have been modernized by a private consultant. We have issued a complete office and correspondence guide and adopted an active forms-control program.

## Handbook

New councilmen now have the advantage of a handbook we assemble prior to each election containing applicable state laws, city ordinances and other information that will aid them in their work. We also have prepared a Municipal Code, containing all ordinances which have been passed during the previous 50 years.

To utilize police manpower to maximum effectiveness, we have established one-man patrol cars on all shifts. We find it better to lease police cars than to purchase them outright. We take advantage of the Los Angeles Police Academy to train all new policemen. A new Juvenile Unit in the Police Department now deals with this specialized police area.

*Only three repeat cases of juvenile delinquency in three years.*

In the Fire Department, we use a three-platoon system for fireman deployment. The Fire Department has established mutual-aid agreements for fire protection with all nearby cities.

A full-time fire-prevention unit has been created to buttress fire company prevention visits of residential, commercial, institutional and industrial structures. An emergency resuscitator service, provided by our regular Fire Department personnel, has proved to be very popular.

The city has developed a realistic civil defense plan and program, based on city employees and equipment for rescue in disaster situations.

Now let us look at personnel policies. No city can operate efficiently unless it cares for its personnel at least as well as it does for its trucks, tractors, pumps and other equipment.

For the past four years, we have made an annual survey of all city employees to determine their opinions of working conditions, supervision, salaries and employment. For the past six years, we have made an annual review of salaries and classification of all employees, conducted by professional consultants. At regular intervals, and prior to any increase in salary, an evaluation is made of each employee's performance.

We have established in-service training courses in human relations, the technique of municipal administration, letter writing, first aid and safety, and telephone etiquette.

## Merit System

A personnel merit system has been adopted by ordinance, with working rules and regulations. Colorful recruitment bulletins are prepared for each vacancy, and an information handbook is presented to all new employees.

Five sets of uniform work clothing are provided for field employees with a City of Covina emblem sewed to the shirts to identify the workers. Each employee is covered by group health and medical insurance financed by the city.

New employees and those eligible for advancement receive examinations by professional consultants. In addition to medical examinations for all employees, firemen and policemen also receive psychological examinations.

A five-man Personnel Advisory Board hears written appeals from employees regarding disciplinary action, dismissal or demotion. An employee, however, can appeal through any of three avenues: his supervisor, a five-man grievance committee elected by the Employees Association which is authorized to present the grievance to the city administrator, or the Personnel Advisory Board.

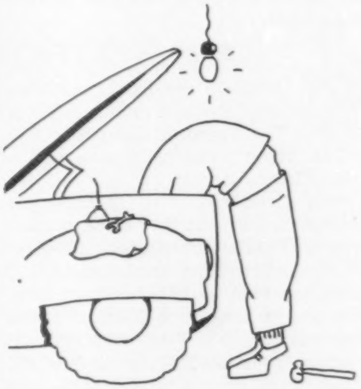
We honor employees for length of service by appropriate pins and ceremonies beginning with the completion of the first year of service. The sum of $1,500 is budgeted annually for the education of employees in nearby high schools, colleges and universities.

A long-range capital-improvements program forms the basis of our future work. This represents a study by 90 citizens organized in seven committees. In addition, we operate in harmony with a General Comprehensive Plan developed by professional consultants, which includes land use, public facilities and traffic circulation. The plan is maintained in current status by semi-annual reviews.

Ninety citizens recently completed work on an urban renewal study similar to the capital-improvements program.

## Asking the Citizens

To make a program successful, one first must *do* an effective job; next, let the public *know* about it; and third, *find out* whether we are overlooking anything.



*Preventive maintenance.*

Last year we sent a survey questionnaire to every home and business in the community inviting the citizens to comment on their local government and community characteristics. We then tabulated the results and published them on a full page of the local newspaper. We often try other methods to determine the needs and desires of our citizens.

## Listings of Projects

We prepare annual listings of city programs and projects and distribute them widely, not only to official agencies but also to many groups and individual citizens. Additionally we have descriptive, factual leaflets available for distribution on the possibility of annexation of nearby unincorporated areas.

In 1957 for the first time, we mailed a comprehensive annual report on city activities to every household in the city, plus sending out leaflets on fire protection, rubbish collection, civil defense, bicycle safety and other topics.

The foregoing administrative practices have been developed for a municipality which has grown from 3,956 in 1950 to 20,600 today, a 410% increase. It has 4.1 square miles of area, or 210% more than it had 10 years ago.

### Assessed Valuation

Our assessed valuation has increased 650%; expenditures, including water, 720%; bonded debt 300% to $210,000; the sales tax revenue has increased 1250%, and business license revenues have risen 680%. The property tax has *decreased* 27%.

Today we receive about $22 per person in property tax, $19 per person in sales tax receipts, and roughly $2 per capita in business license revenues. We spend $106 per person, much of that being in the water department, with water rates compensating for this.

We have 144 full-time employees, or about 7 per 1,000. This is about the same ratio as in 1950. ◄◄

## Glimpses into a Village Fire Department

The Lynbrook Fire Department is a volunteer organization whose job is to protect the lives and property of the 17,000 (1950) people of the Village of Lynbrook, N. Y. A mighty brief account of the start and status of several of our fire companies may be of some interest. In addition to the five noted here there are also our Lynbrook Hose Co. No. 1 and Tally-Ho Engine Co. No. 3, each with a 750-gpm pumping engine.

Engine Company No. 1 was organized in 1901 and has given twelve chiefs to the Lynbrook Fire Department. Present membership is 46 men. The firehouse has one 1,000-gallon Mack pumping engine and a rescue squad truck.

The Lynbrook Fire Department Rescue Squad, the first to be organized in Nassau or Suffolk County, celebrated its 32nd anniversary this year. Started in 1928 with 17 men, the group bought a Mack Canvas top truck in 1930. This was the first rescue truck in Nassau or Suffolk. The squad now averages 225 calls per year and now has 32 members drawn from the various companies of the Fire Department.

Floodlight Unit No. 1 was organized in 1938 with ten men under Capt. Ben Bradley. The original truck with a 5-kilowatt D. C. generator set was replaced in 1958 by a heavy-duty Mack truck equipped with a 15-kilowatt A. C. generator set, six 500-watt floodlights, a 1,000-watt spotlight, ten 500-watt portable hand lights with reels for entering fires, two smoke ejection units and a 40-watt public address system.

The 50th anniversary of the Vulcan Chemical and Hose Company was celebrated by a parade and tournament on June 10 and 11, 1960. Forty crack teams from Nassau and Suffolk Counties competed for 65 trophies.

Original equipment consisted of a two-wheel pumper equipped with 600 feet of hose and 80 feet of manila rope to pull the apparatus to the fire. Since then three Mack pumping engines have been purchased: a 250-gallon unit in 1920, 750-gallon unit in 1929,and a 750-gallon-unit in 1950.

The Rescue Hook, Ladder and Bucket Co. No. 1, Inc., was organized 81 years ago (1879) by 15 civic-minded men. At present we have 45 men and still operate out of the original quarters built in 1885.

We now have an 85-foot aerial ladder truck and a utility truck that carries air and oxygen tanks for our smoke masks. We also have our own fire inspectors or Fire Prevention Bureau consisting of three men, none paid. It was organized in 1945 and is one of the leading fire prevention bureaus in Nassau County, making over one thousand inspections a year.

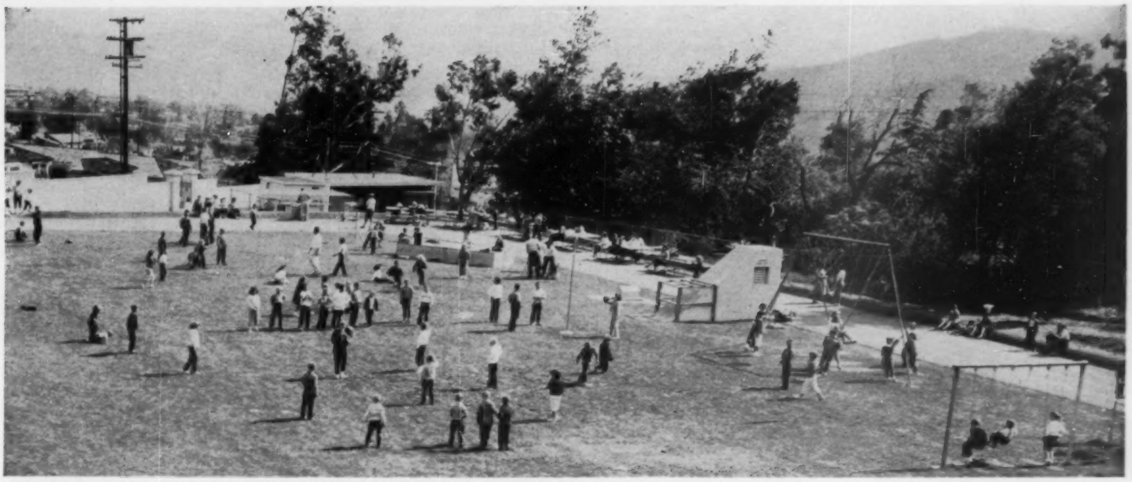
JOHN F. THURMAN  
*Fire Chief*  
*Lynbrook, L. I., N. Y.*

## Ambulance-Cruisers

Five International Travelalls equipped as ambulances are also satisfactory as cruisers, according to Police Chief George W. Scholar of the City of Columbus, Ohio. These International three-door units are equipped with automatic transmissions and with 154.8-horsepower V-8 engines.

The ambulance cruisers are equipped with Beacon Ray light, under-hood siren, rear-mounted flasher lights, 60-ampere alternator, and two-way police radio. ◄◄

***Eye-appealing surroundings are as important in an ambulance as in a hospital. R. J. States, Inc., Springfield, Ohio, uses Formica laminated plastic in the interiors of the economy-priced ambulances they build on International Travelall chassis. The Formica surfacing, covering 120 square feet of the ambulance interior, permits fast cleaning with strong hospital disinfectants. The Formica Corp., Cincinnati, Ohio, is a subsidiary of the American Cyanamid Co.***



*To some this is a water reservoir but to the people here it is a pleasant, useful playground.*

# Planning Can Produce Money-Saving Park Programs

## . . . and still maintain high park and recreation standards in Glendale, Calif.

By **C. E. PERKINS**
City Manager

We all know that few local governments have enough resources to meet the financial needs of *all* their various activities. Moreover, we know also that if we take too seriously the recommendations of such very worthwhile groups as the National Recreation Association, the American Library Association, the National Board of Fire Underwriters and others, we quickly become hopelessly frustrated. A city simply cannot meet all these recommendations. Moreover, even if it could, its people may not want to —they may prefer spending their money on other activities than those recommended by these professional associations. They certainly have the right, if they wish, under our democratic form of government.

Many times, one hears the rather broad statement that "You can do anything if you have money." That is the lazy man's approach. A manager or administrator worth his salt is one who can find out how to do things when he doesn't have the money. The substitute that you need for the extra money is resourcefulness.

For example, to get the land needed costs money. Nevertheless, by careful long-range planning, hundreds of cities have obtained land without cost through reclamation of large waste areas by the sanitary-landfill method of refuse disposal. Some of our finest parks of tomorrow will result from this self-amortizing type of project.

### City-School Cooperation

Take another example: we've been told for years that parks and schools are incompatible—that they cannot be combined for the good of the general public, no matter how much planning studies show its desirability. Today, we know that this is not true. In many cities, administrators in both the schools and municipal government are making joint use of their facilities, providing improved recreational facilities at low cost.

This joint use covers everything—athletic fields and buildings, swimming pools, playgrounds, and even specialized equipment such as sod cutters. Moreover, the taxpayer response has been enthusiastic.

Now let's look at other non-recreational municipal facilities that, by good comprehensive planning, can provide park areas, particularly neighborhood parks. Not long ago, Glendale covered an underground water reservoir and produced a playground. If just a little more land were devoted to pumping stations, one could make a neighborhood park.

Next, let's see what can be done about money for operations. This does not need to be hopeless either. The best way is to see that the operation is really efficient. A little close examination may uncover lots of labor and money-saving devices.

However, don't overlook the revenue from fees charged. Many cities haven't increased them in 10 to 20 years, yet everyone knows that a fee charged ten years ago can be made 50% higher today, based on inflation's requirements.

Now let's look at the third basic requirement: personnel. Lack of qualified manpower may stem from too low pay scales, or outright unavailability of persons trained in required skills. These difficulties may be beyond the scope of the administrator to correct. However, he can at least make the most efficient use possible of the personnel he does have. An important way to do this is to consolidate the parks and the recreation department under one administrative head. In-service training of supervisors pays good dividends. Also beneficial are such programs as driver testing and training, industrial safety training, and employee-information activities.

The future will require even more resourceful planning, which will embrace more active park programs. More leisure time and more people to enjoy it can only mean bigger programs, more facilities, and bigger budgets. Just a few of the rapidly-growing features are::

- **Little League baseball.**
- **The noisy gas-engine powered model aeroplanes.**
- **The still noisier gas-engine powered midget autos and racers.**
- **An increasing interest in golf.**
- **Diminishing available land.**
- **And probably the greatest problem of all—the encroachment of public buildings, streets, and highway rights-of-way and other non-park uses on those areas which were originally envisioned and perhaps even developed as park sites.**

Good planning, good administration, good management, seasoned with resourcefulness will help an alert city meet the challenge of the future without budget increases that spiral skyward like an Atlas missile. ◄◄

## Radar Traffic Count Tests in Pennsylvania

The Planning Division of the Pennsylvania Department of Highways is responsible for the collection and maintenance of traffic records and long-term traffic-trend statistics of the Department of Highways. In order to carry out this responsibility, the department has operated 55 continuous electric-eye-count stations strategically located throughout the state.

With the advent of a large number of sports cars and the exceptional glass area in the modern automobile, along with its low silhouette, the continuation of electric-eye counters is resulting in count information of questionable accuracy. Efforts have been made to adapt the electric-eye equipment to this modern trend in automotive travel. Such efforts have involved the change of angle of the beam crossing the highway and the reduction in the height of beam. Neither method has proved successful in obtaining counts that are reasonably accurate. Lowering the beams to detect the modern type of vehicle has resulted in multiple detection of truck-tractor, semi-trailers and other truck combinations.

It thus seems apparent that automatic counting equipment of this type must be replaced with equipment capable of a higher degree of accuracy.

Realizing the difficulty being encountered with electric-eye counters and with the advent of the construction of express facilities within the state and and the demand for traffic statistics on these facilities, the Planning Division proceeded with the installation of treadle counters at eight locations strategically located throughout the state on interstate or express highways. These installations consist of individual treadle detectors in each traffic lane so spaced that it would be impossible for a vehicle to pass the counter station without being detected on one but never being detected on two treadles. The treadles, in turn, were connected to automatic recording equipment. Such installations have provided traffic statistics to an acceptable degree of accuracy. However, the necessity of correcting treadle count information due to the counts being based on axle detection rather than vehicular unit has resulted in less accuracy than could be obtained by a unit-counting installation.

With the recent development of radar detectors and their adaptability to volume count stations, the Pennsylvania Department of Highways with the cooperation of the Automatic Signal Division, Eastern Industries, Inc., and Streeter-Amet Corporation installed a test radar-detector volume count station on the western approach to the M. Harvey Taylor Bridge in the City of Harrisburg, immediately adjacent to a treadle-counting installation. This installation involved the erection of a RD-1A radar detector suspended over the inside eastbound lane of the structure, and connected to a Streeter-Amet hourly-recording single-impulse counter. This test installation was operated for several weeks and then altered by placing the radar detector at the center joint between the two eastbound lanes, thus using the unit to detect traffic in both lanes. The latter installation did not give satisfactory counts because of the high volume of traffic in both lanes and the constant presence of vehicles in both lanes at the radar-detector locations. The results indicate the impracticability of this type of installation on heavy volume roads.

At the time of installation of the equipment for both of the above tests, we considered the possibility of adjusting the radar beam to detect only high vehicles—primarily the commercial vehicles. Manual and radar results proved that this was impossible.

An examination of the manual counts and comparative tapes as removed from the radar and treadle counter shows the radar to have provided a superior degree of accuracy.

Aside from the accuracy of count, another factor of importance to this department is the difficulty of installing treadle counters, particularly the inconvenience to traffic during installation and the readjustment of equipment necessary after any surfacing of pavement adjacent to the treadle.

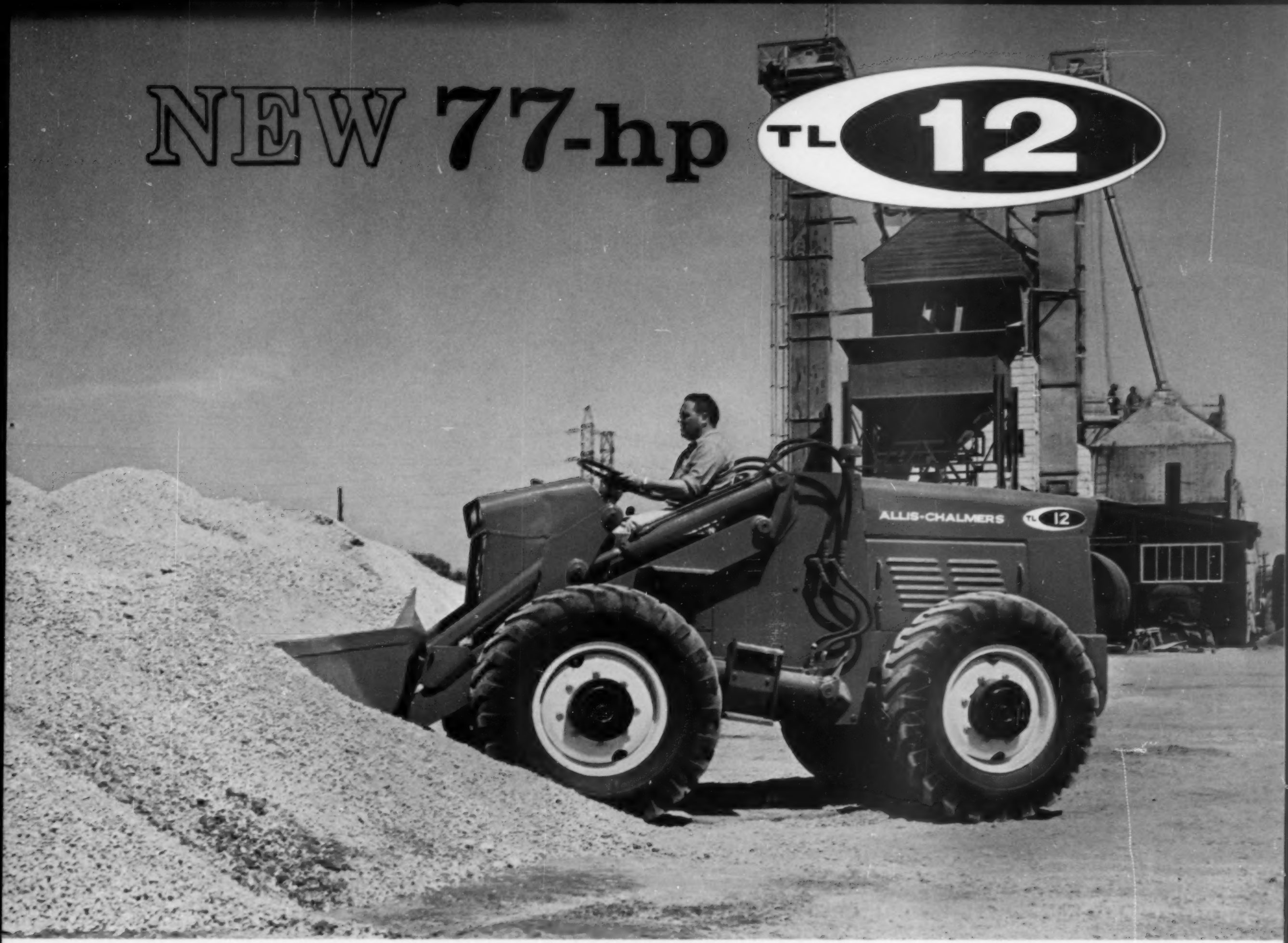
The installation of treadles necessitates sawing the concrete surface and removing the sawed section by jack-hammer, truck and manual labor. Conduit must then be placed from the cut section to the outside of the roadway under the remaining pavement, the treadle frame must be set and concrete poured and cured. Using high early strength concrete, the best time this Department was able to achieve was three days per lane.

The installation of radar detectors would necessitate the erection of two support poles outside the traveled way and the stretching of span wire supports from the detector and mounting the radar detector with necessary lead wires on the span wire, all of which should not require interrupting traffic for more than thirty minutes.

After considering all the factors the Highway Planning Division recommended that steps be taken by the Department to replace existing electric eye counting stations and that future counting stations make use of radar detectors.

PAUL D. MUFFLEY, *Planning Engineer*
*Department of Highways*
*Harrisburg, Pa.*

# NEW 77-hp TL 12



# BIG-LOADER FEATURES . . . YET FITS TIGHT BUDGETS

**The new Allis-Chalmers 77-hp TL-12 is designed like the bigger TL-14, TL-16 and TL-20 models—yet its important features are yours at a real savings.**

***TRACTOMATIC Transmission**—Automatically gives you 30 percent faster speeds in reverse. Your operator merely flips a lever on the steering column to go from forward to reverse. To get a higher reverse speed on other loaders, two separate levers must be moved.

***Five-way Hydraulic Protection**—Air is double-filtered by an air breather and an air filter. Hydraulic oil is thoroughly cleaned by a full-flow micronic filter, conical screen and magnetic filter. Only Allis-Chalmers offers this 5-way filtering protection for peak hydraulic system efficiency . . . extended hydraulic service life.

***Pinned-Down Stability**—Axles on the new TL-12 are pin-connected directly to the frame by solid steel pins . . . not lightweight U-bolt connections. Axles remain rigidly in line . . . there's no shifting or rolling under load.

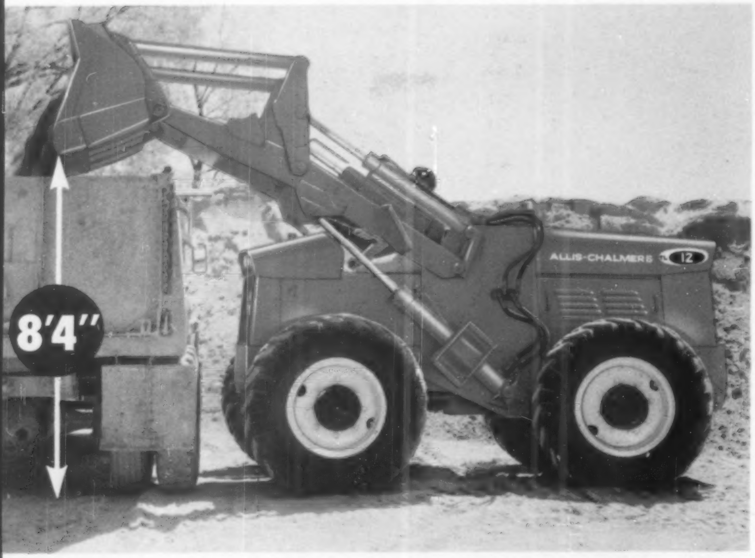
***Choice of Buckets**—In 1, 1⅛, 1½ and 2-cu-yd capacities. You choose the bucket size that best fits your operating conditions and the kind of material you handle.

***Parts Interchangeability**—The new TL-12's controls, pumps, lights, counterweights and hydraulic components are interchangeable with like parts on larger Allis-Chalmers tractor loaders.

***THERE'S ANOTHER SIDE TO THIS TL 12 STORY* ▶▶▶**

**move ahead with ALLIS-CHALMERS**
**. . . power for a growing world**

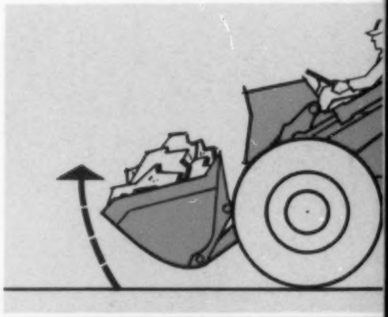
# ALLIS-CHALMERS NEW TL 12



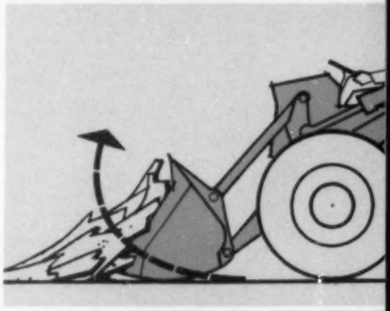
## GIVES YOU AN EDGE IN PERFORMANCE, TOO!

**High Lift, Long Reach**—8-ft, 4-in. dumping height combined with 32½ in. of usable reach means the TL-12 loads big trucks fast and easy.

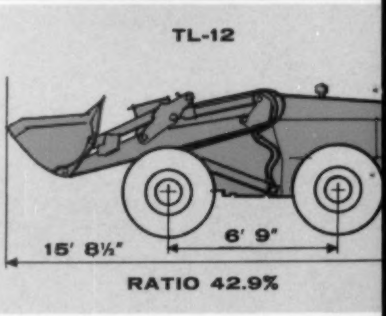
**9,500-lb Lifting Capacity** . . . more lift than so-called bigger units. Compare this advantage with other loaders, you'll be convinced that the TL-12 gives you extra workability.



**14,500-lb Pry-Out Force** lets the TL-12 outperform "bigger" competitive loaders. Added force at the bucket edge means you can work in hard-packed materials . . . get more work done.



**Added Stability**—42.9 percent ratio of wheelbase to length. This extra stability lets the TL-12 carry big loads at high speeds without spilling or tipping.



*77-hp—4,000-lb carry capacity*

We'll be out soon to show you these advantages on your job. You'll be convinced that the TL-12 gives you more big-loader features—at a budget price—than anything near its size!

LITHO IN USA D&

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION,
MILWAUKEE 1, WISCONSIN

move ahead with

**ALLIS-CHALMERS** A-C

. . . power for a growing world

*When you invest—*
*Get the best—*
*Buy*

**WATCH DOG**
**WATER METERS**

GAMON METER DIVISION
NEWARK WORTHINGTON NEW JERSEY

A-W Pacer 100—Jackson Township, Pa.

Power up front; alive all over!

"You can steer an Austin-Western grader anywhere, everywhere . . . just where you want it. The rear end steers too, making it possible to *work* easily around corners, curves, and obstacles."

**No dead weight**

"And it has power up front . . . in fact, it's alive all over. Every pound works. There's not an ounce of dead weight to push around, because the front wheels are driving wheels too, unlike other make graders. Hydraulic controls make it easy to operate without getting tired.

"Our Austin-Western is dependable, economical, and easy-to-maintain. I'd recommend an A-W to anyone looking for the most from his dollar."—*Jim Shoop, Supervisor, Jackson Township, Pa.*

**Exclusive features**

Only Austin-Western offers a complete line of all-wheel drive and all-wheel steer power graders. They are available in 4-wheel Pacer or 6-wheel Super models. Weight classes from 16,000 to 30,000 lb.; horsepower ratings from 106 to 165 hp. Fully controlled hydraulically. Learn why Austin-Western graders are worth more to you. See your nearby distributor or write to us.

Front pulls, rear steers. A-W graders go anywhere to do everything!

Austin-Western
CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.
BALDWIN · LIMA · HAMILTON
BALDWIN BLH LIMA-HAMILTON
Power graders • Motor sweepers • Road rollers • Hydraulic cranes

## Free Trips Downtown

It is about time that additional effort is made in our cities to alleviate traffic problems. Transit companies, business concerns, and the public have much at stake. The following proposal could bring some relief without altering existing facilities.

The major problem facing the transit companies is a declining patronage and the consequent declining revenues.

The declining ridership is most noticeable during the hours when the transit companies are best able to handle additional traffic. This unused capacity during the off-peak periods is a thorn in the sides of transit companies.

Meanwhile, businessmen downtown feel that they are not receiving their proper share of area growth. They believe that suburban shopping centers are diverting many potential customers, and the phenomenal growth of these conveniently placed centers, surrounded by ample free parking space, would seem to bear out their contention. Traffic congestion and parking problems downtown have played a large role in the growth of these centers.

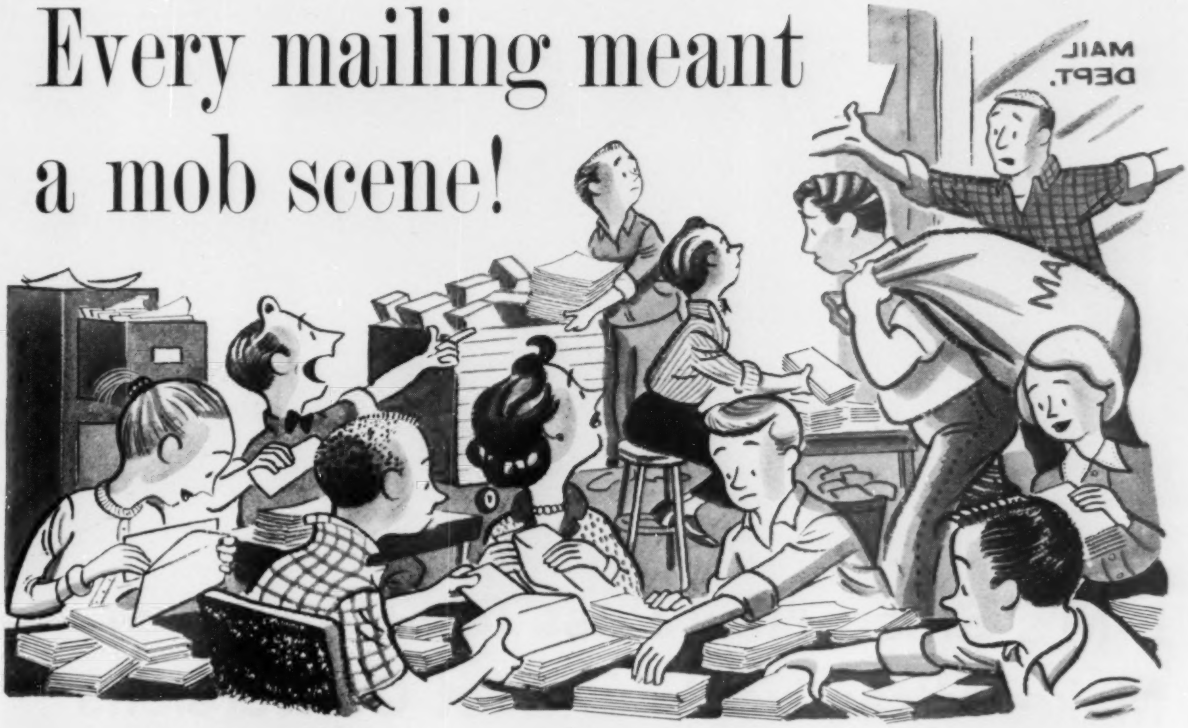
In an effort to offset the convenience factor of suburban centers, many downtown stores have developed some form of "park and shop." While this may help eliminate the cost of downtown parking for the shopper, it does not eliminate the cost in money and nerves that the shopper must incur to arrive downtown.

This is the proposal. Let the downtown stores jointly offer transit passes or tokens with stated minimum purchases. This would in effect be offering the customer a free trip downtown, provided two tokens were presented with the purchase. The tokens could be restricted by some manner of marking or form so that they would be valid only during the off-peak hours. Because of the existing excess capacity, the transit companies should be eager to enter into such an arrangement.

This transit scheme—we might call it "bus and buy"—probably would cost no more, and possibly less, than the present "park and shop" system. It isn't a solution but it might give some relief at this time.

N. D. O'Bannon
*Research Associate*
*University of Maryland*
*College Park, Md.*

# Every mailing meant a mob scene!



"Mailing tax bills and occasional special assessments was a headache. The jobs were always late and full of mistakes caused by too many workers with too little experience. The taxpayers got just as mad as the Tax Collector and the Town Clerk was ready to quit.

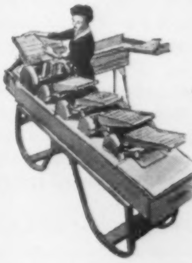
"Then we got smart and bought the little Pitney-Bowes folder and inserter. Now one girl handles all the mailings, and has a lot of time for other jobs. Peace, it's wonderful!"

The Model 3300-FH is a small combined folding-inserting machine – that folds and stuffs into envelopes 500 single sheet enclosures within eight minutes.

The 3300-FH handles punched cards, invoices, bulletins, carbons, even stapled sheets. It is easy to set and operate and adds greater work capacity. Used for payrolls, tax bills and refunds, pension checks and other accounts payable; combines speed with accuracy – assures a well done job – on time. The inserter unit can be used separately with any PB folding machine.

Ask any Pitney-Bowes office for details, or send for free illustrated booklet and case histories.

**FREE:** *Handy desk or wall chart of Postal Rates, with parcel post map and zone finder.*



*The 3100 Inserter is a larger, high capacity model, that will stuff up to six enclosures, at speeds as high as 6,000 per hour. It can also be attached to a Pitney-Bowes postage meter mailing machine that meter stamps and seals envelopes after stuffing.*

## Pitney-Bowes
## FOLDERS & INSERTERS

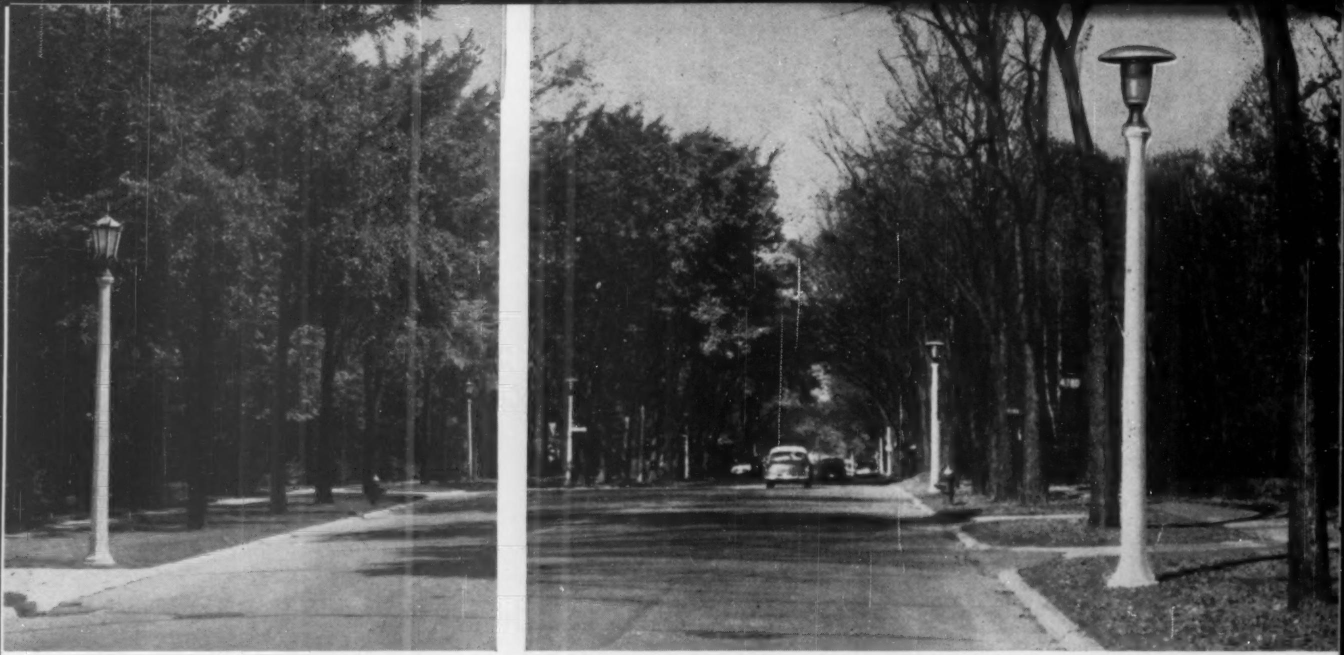
*Made by the originator of the postage meter . . . 139 offices in the U. S. and Canada, with nationwide service coast to coast.*

PITNEY-BOWES, INC.
8568 Crosby St., Stamford, Conn.

*Send free ☐ illustrated booklet and "case studies" on PB Folding and Inserting Machines; ☐ Postal Rate Chart.*

*Name*____________________________

*Address*__________________________



**L-M's POST TOP LUMINAIRES** provide a low-cost means of converting old, inefficient lighting systems. A two man crew averaged less than 8 minutes per standard in converting this residential area.

# L-M's Smart New Post Top Luminaires Make Attractive, Low-Cost Conversions

## Line Material's new PTL offers the latest in design, appearance, and efficient illumination for the economical conversion of any post top lighting system.

**REPLACEMENT** is simple and fast in most instances. The old fixture is removed and the attractive PTL is mounted directly in its place with its own set screws.

The new L-M PTL (Post Top Luminaire) combines modern design with a highly efficient optical system, to provide the very latest in post top fixtures. With a minimum of cost you can adapt most existing standards to a charming modern installation with greatly increased lighting levels. Most standards can be modernized by direct replacement with a PTL at a cost comparable to the replacement parts for two old-fashioned ornamental glass globe and canopy combinations.

The PTL combines a rigid spun-aluminum reflector, an efficient Holophane® refractor, and a sturdy aluminum mounting base. The reflector swings open on a hinge for easy cleaning and for easy replacement of lamps and ballasts.

The combination of reflector and refractor directs all the light down to the surface of the ground. Light cannot shine up and be lost in the sky—no shades will be necessary to block unwanted light from adjacent areas. Lighting levels are automatically increased when PTL's are installed, without increasing lamp size.

Reflectors and base come in natural brushed aluminum or a choice of pastel colors. Available with photo control, to automatically turn light on at dusk and off at dawn. They will accommodate lamps up to 10,000 lumens, or 620 watts multiple; or with ballast in the fixture for mercury vapor lamps up to 250 watts. A choice of five IES light patterns is available; types I, II, III, II 4-way, and V.

You can install PTL's in streets, parks, or any other public areas where beauty and lighting need improving. Try a few in a test area. You'll be surprised at the difference they will make.

### Get Complete Information

Be sure you get complete information on the ease and low cost of converting your present post top lighting to the modern efficient PTL. Contact an L-M Lighting Engineer or write direct to Line Material Industries, Milwaukee 1, Wisconsin. In Canada: CLM Industries, Division of McGraw-Edison Company (Canada) Ltd., Toronto 13, Canada.

**LINE MATERIAL® Industries Outdoor Lighting**

McGRAW-EDISON COMPANY

DISTRIBUTION TRANSFORMERS • RECLOSERS AND OIL SWITCHES • FUSE CUTOUTS AND FUSE LINKS • LIGHTNING ARRESTERS
POWER SWITCHING EQUIPMENT • PACKAGED SUBSTATIONS • CAPACITORS • REGULATORS • OUTDOOR LIGHTING
LINE CONSTRUCTION MATERIALS • PORCELAIN INSULATORS • FIBRE PIPE AND CONDUIT

McGRAW EDISON

LERNER SHOPS
LERNER

*The streets are bright under new lights in Little Rock's downtown where . . .*

# Little Rock Seen In a New Light

By **DEAN DAULEY**
City Manager

*. . . previously poor lighting had left them dark and gloomy.*

In a brief noon televised ceremony at City Hall, Miss Marietta Meyers, Miss City Beautiful, and the city manager installed a lamp in the mercury vapor luminaire at the south end of the Broadway Bridge to kick off Little Rock's new street lighting system.

It marked completion of the first section of lights installed by crews of Arkansas Power & Light Co. This section of Broadway is now lighted by 800 Westinghouse mercury vapor units. The steel poles were made by Kerrigan Iron Works, Nashville, Tenn.

Participating in the televised ceremony were Mayor Werner Knoop and members of the city's Board of Directors; Mrs. Roy Alexander, chairman of the City Beautiful Commission; and Grainger Williams, president of the Little Rock Chamber of Commerce.

In concluding the ceremony, I remarked that when I came to Little Rock in January 1958, it was obvious that one of the city's most urgent needs was a new street-lighting system. For its size, Little Rock was one of the worst lighted cities in the nation. Our board was in agreement but the city just did not have the finances for the system. Arkansas Power & Light Co. expressed a willingness to explore the problem with us. We arrived at an agreement and the lights on Broadway represent the beginning of one of the finest street lighting systems in the country. It is now completed and extends over into North Little Rock, a separate city.

AP&L assumed ownership of the street-lighting system on October 1, 1958, when the company purchased the system from the city for $104,000. AP&L crews are constructing the system and will be responsible for maintaining it.

There will be three times as many lighting units as in the old system, and 11 times the light. The total outlay by AP & L will be $2,500,000 for installing this system. Annual costs will be $192,000.

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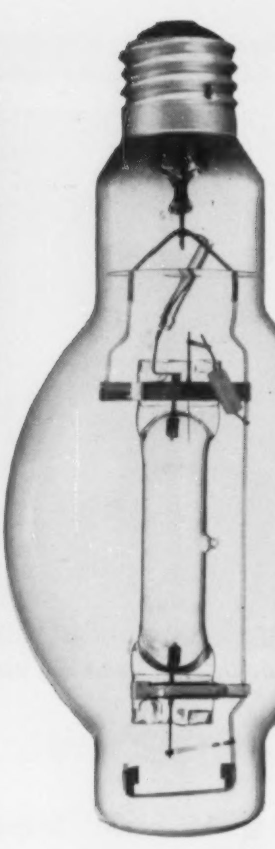
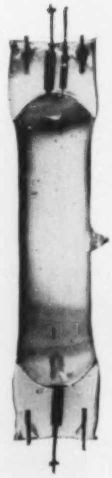
The author is now vice-president of the Great Southwest Corp., Dallas, Tex.

# 6000 USEFUL HOURS EXTRA

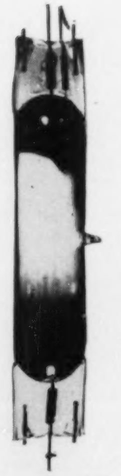


**New G-E "Bonus Line" Mercury Lamps.** 6000 extra hours! That's the bonus you get in every 400-watt G-E "Bonus Line" Mercury Lamp . . . and a minimum of 3,000 hours extra in the other wattages. One look at these two light-producing arc tubes and you can see why General Electric "Bonus Line" Mercury Lamps are your best bargain. See how the one from a G-E Lamp stays white? That's because its special electrode doesn't deposit a *black* coating, but a translucent *white* coating that lets the light come through. The result: you get as much light at *9,000* hours as ordinary mercury lamps give at *3,000* hours. General Electric "Bonus Line" lamps now available in *all* sizes from 100 to 1,000-watts . . . in all popular shapes and "colors". . . *at new low prices.*

Men in the know . . . know they get important differences when they specify General Electric Lamps—whether they're mercury, filament or fluorescent. So let your General Electric Lamp distributor explain the important plus you can get in the lamp types you use. General Electric Company, Large Lamp Department C-033, Nela Park, Cleveland 12, Ohio.



BONUS
ARC TUBE
AFTER
8000 HRS.



ORDINARY
ARC TUBE
AFTER
8000 HRS.

*Progress Is Our Most Important Product*

**GENERAL ELECTRIC**

*This was Hollister's old street lighting. It was 50 years ago that the then-modern post-top luminaires were installed. The average illumination was 0.17 footcandle and there was many a dark spot between the lights.*

# Step by Step in Hollister

*This is the way in which the 23,000-lumen Westinghouse mercury vapor Silverliners, up 30 feet on Union Metal steel poles, are stimulating night business in Hollister.*

With new mercury vapor lighting already in its central business area, the City of Hollister, Calif., is now bringing quality street lighting to its residential areas. This is the second step in our master street lighting plan whose adoption was a real step forward in the rational planning of municipal services. The master street lighting plan is a great help, both on policy making and administrative levels. The public knows about the master plan and recognizes that our street lighting problem is being attacked on an equitable, city-wide basis.

Since its adoption we have had no charge of favoring one area over others. When requests for lighting come up, we say, first of all, "Let's look at the master plan." I should add that, since working under the master plan, no request for better lighting has been turned down if the plan showed an immediate need for improvement.

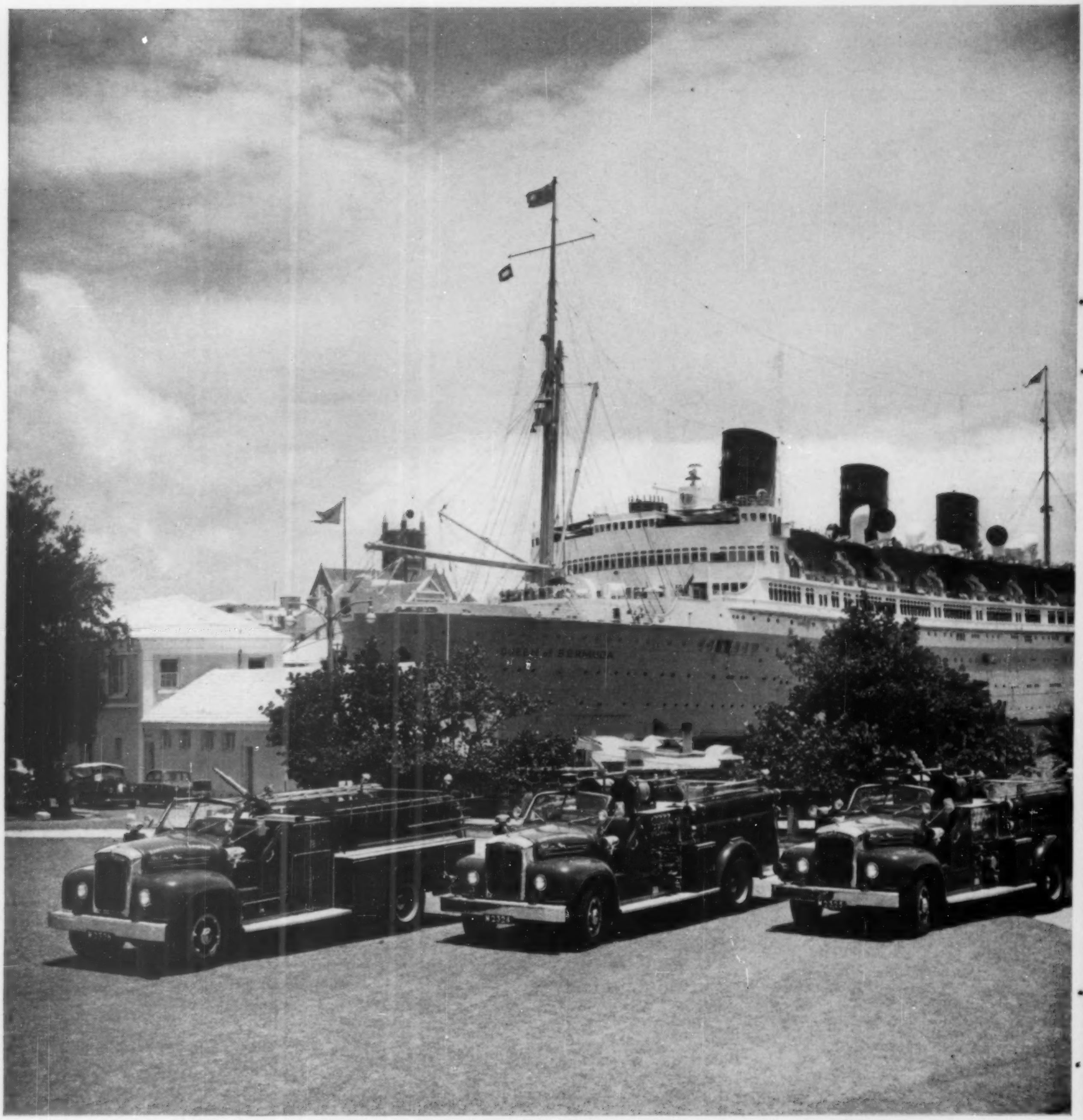
Hollister, a community of 6,100 people in the central coast region of California, some years ago obtained an over-all survey of existing conditions and a long-range, comprehensive plan for improved lighting. Preparation of a master street lighting plan is a service offered by the Pacific Gas and Electric Co. to all cities in its area.

This office is indebted to and grateful for the preparation of this material and the picture taking to Syl L. Culwell, supervisor of customer services for Pacific Gas and Electric Company, and Dale N. Strunk, the district manager. Both of these gentlemen have worked long and hard for our city and the City Council in making the new plan a reality.

Utility lighting engineers field-checked all streets in Hollister to determine the proper type, size and spacing for street lights. This detailed field information was then integrated into a step-by-step procedure for installing modern street lighting.

At that time the downtown was lighted by post-top fixtures installed a half century before. The master plan called for 23,000-lumen color-improved mercury vapor luminaires in the business area. The City Council was agreed on this over-all plan but was undecided on whether to specify an overhead or underground electric circuit. They also debated the relative merits of city ownership against utility ownership.

*(Continued on page 141)*



**FIRST DIESEL FIRE APPARATUS** built by major manufacturer who makes both apparatus and own diesel engine are these three units recently delivered to Hamilton Fire Brigade, Hamilton, Bermuda. Two 1250-gpm pumpers at right have supplementary front suction, 200 gal. booster tanks and two hose reels each. Hose wagon and equipment carrier at extreme left carries 8400 ft. of English fire hose (6000 ft. 2½", 1200 ft. 3½", and 1200 ft. 1½" hose), and equipment such as forcible entry tools, cutting torches, gas masks, resuscitators, and smoke ejectors. All three units have 230 hp turbocharged Mack-built Thermodyne diesel engines, Fire Department quick build-up air brake systems, 24-volt electric starting systems, and 100 amp. alternators.

**COMPLETE LINE OF PUMPERS—500 to 1250 GPM...SQUAD AND HOSE WAGONS...AERIALS 65′ to 146′...COMBINATION LADDER TRUCKS**

**Versatility at work...**

# Mack diesel apparatus help solve Bermuda's fire protection problem

For the first time in the history of American apparatus manufacture, a major maker of fire-fighting equipment has installed a diesel engine of its own manufacture in fire apparatus.

The place? Hamilton, Bermuda.

The reason? Only 21 sq. mi. in land area, Bermuda has limited storage space for fuel . . . must extract from the fuel it brings in the greatest amount of work.

Thus Hamilton poses a special problem in fire protection. For as Bermuda's requirements call for heavy-duty apparatus with large pumping capacity, they likewise call for powerplants which use the least fuel possible.

That means diesels—which require far fewer gallons of fuel per engine hour. And that means Macks, for the world-famous Thermodyne® diesel engine has already proved itself in millions of miles of highway and city service . . . is why Mack is acknowledged as the leader in diesel-powered vehicles.

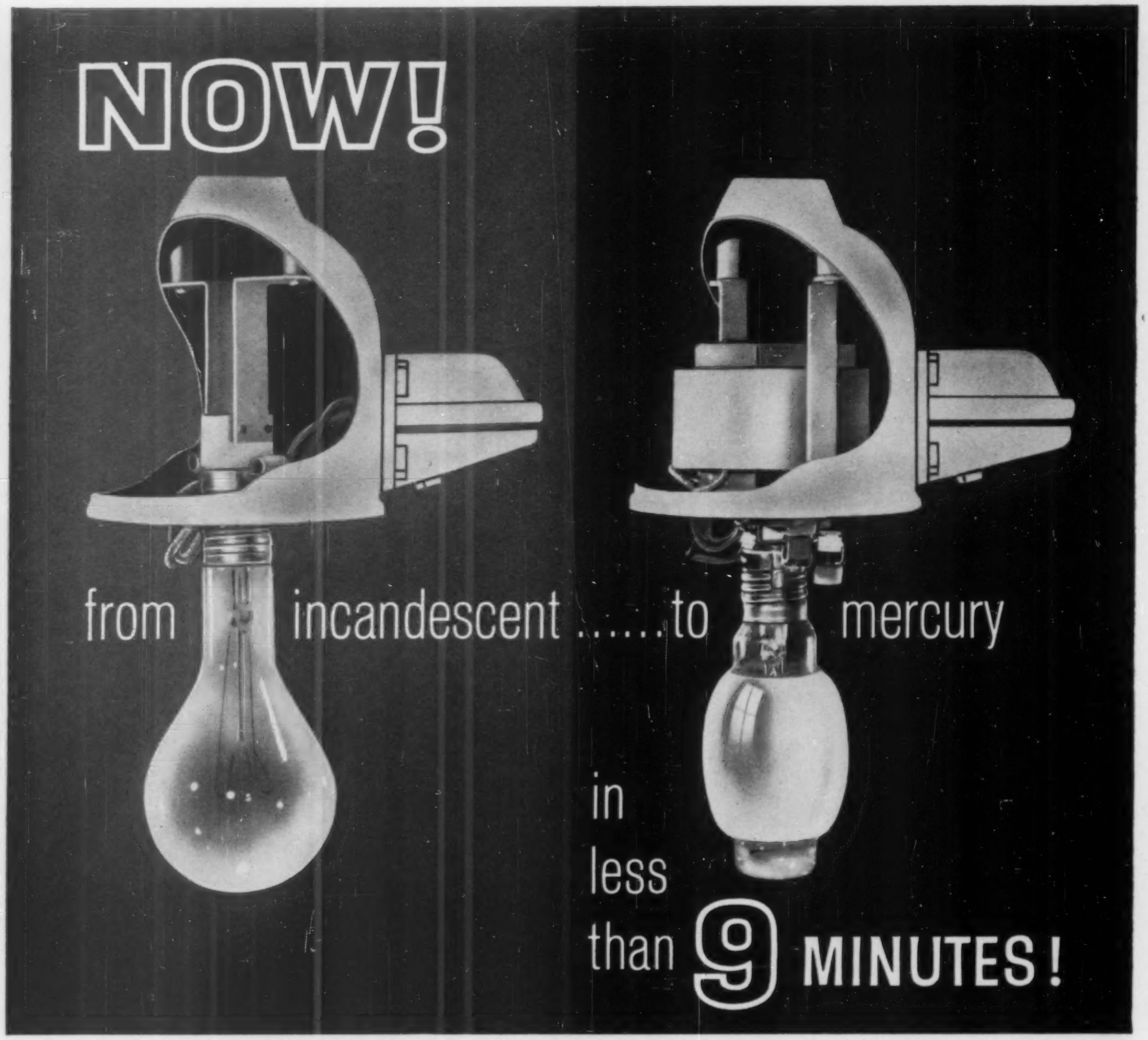
It means Mack fire apparatus for other reasons, too. Because Mack makes more of its components—engines, transmissions, rear axles and rear four-wheel-drive tandems—Mack is more able to custom-build its fire apparatus to the standards of a single department, as it has for Bermuda.

Every department needs the best possible equipment to protect against fire. And that equipment is Mack. No other apparatus manufacturer can be so versatile . . . no other apparatus can be "Built like a Mack!" Mack Fire Apparatus, Allentown, Pennsylvania. Mack Trucks of Canada, Ltd., Toronto, Ont.

7078

**MACK** FIRST NAME FOR **FIRE APPARATUS**

**PROTECTING PEOPLE AND PROPERTY**, Hamilton's three diesel-powered Mack apparatus are shown in front of one of resort island's many modern hotels to which tourists from all over the world are attracted. Tourism is the staple of Bermuda economy, and most modern, most efficient fire apparatus is used for best protection.



## ...with new Sylvania Mercury Conversion Kit

Now you can triple your light output, save operating dollars—*without the penalty of high installation costs.*

New Sylvania kits permit conversion of your existing heads to mercury in one easy operation. They're designed for EEI-NEMA type heads, and because the ballast is built right into the kit, time-consuming installation of remote-mounted ballasts is eliminated. Sylvania also offers the reactor separately for adaptation for other in-head ballast assemblies, and special mounting brackets where equipment requires.

Exclusive Sylvania Light Insurance Policy gives you another saving. It guarantees: "Provided it has not been physically or electrically misused, any Sylvania Standard Mercury Lamp may be returned to the supplier for full exchange if it fails in less than 100 burning hours; and for *pro-rata* exchange against its published rating if it fails between 100 and 4000 burning hours, provided adequate records are maintained to establish actual burning hours, in which case exchange will apply to the nearest 500 hours."

For technical details write for our new descriptive brochure on Sylvania Mercury Conversion Kits, Sylvania Lighting Products, a Division of Sylvania Electric Products Inc., Dept. 63, 60 Boston St., Salem, Mass. In Canada: Sylvania Electric (Canada) Ltd., P.O. Box 2190, Station "O," Montreal 9.

**SYLVANIA**

*Subsidiary of* **GENERAL TELEPHONE & ELECTRONICS**

*(Continued from page 137)*

After weighing advantages of the alternatives, the Council ordered installation of a utility-owned lighting system with overhead feed or steel poles. The city advanced the cost difference between a wood pole and a steel pole system (cost per unit $107) and thus obtained service at the wood pole rate. This cost for steel poles was the only initial charge to the city; all other capital investment was made by the utility.

Mayor F. M. Bishop reports: "We decided on this type of financing as the best method for obtaining the installation we wanted at a reasonable cost. It enabled us to keep funds available for other projects—and we certainly need all the available capital we can get to finance the city's growth."

The business district lighting was installed substantially as called for by the master plan, with the addition of lights on streets feeding into the downtown area.

Installation of the mercury vapor lighting was begun in the summer of 1959. New mercury vapor luminaires with integral series ballasts were in developmental stage when the project started. Special arrangements were made with the luminaire manufacturer (Westinghouse Electric Corp.) for an advance, limited production run. Thus, the City of Hollister had the first installation of these new street lights in the country. The new units eliminate the separate ballast formerly required with mercury vapor lights. This adds to good appearance while reducing installation costs.

## Enthusiasm

The new lights were ready for operation August 14, 1959. To mark the occasion, a "Lights-On Celebration" was organized by civic leaders. Downtown merchants stayed open to kick off the "Back-to-School" shopping period. Entertainment included "go-cart" races on a blocked-off section of street. This was followed by a band program and speeches by Mayor Bishop and State Assemblyman Glenn Coolidge. The Celebration culminated with a radio-relayed switching order energizing the new lighting system. The illumination, 12 times greater than the old lights, drew unanimously favorable comment on its improved visibility, even coverage, and reduced glare.

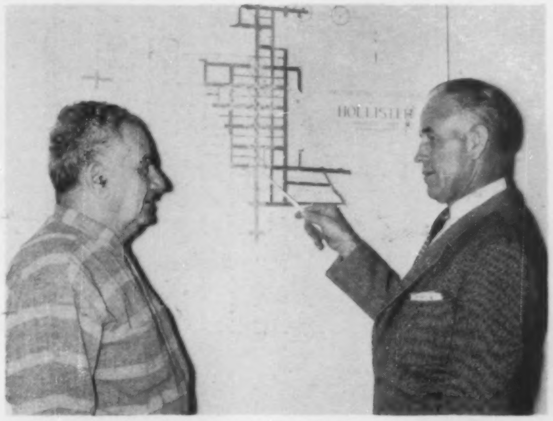
City Treasurer, R. D. Nolte, a long time resident of Hollister, couldn't resist comparing the modern new lighting system with conditions at the turn of the century.

"Why, back then," he recalled, "they turned the lights off at midnight. Not just the street lights, *all* the lights. The city electricity was provided by a small power company with a single steam-powered generator, located right where the Pacific Gas and Electric Company yard is now. In those days, they shut down the machinery at midnight. After that, if you wanted light, you had to light up your own gas or oil lamp. We have come a long, long way since then!"

George Best, chief of police, is especially enthusiastic: "Officers patrolling the business area find visibility greatly improved. This means that their work is much more effective than before the new lights went on." While Hollister has not had a full year's record of operation under the new lights, the chief believes there has been a reduction in both crime and traffic problems.

Lester Bisho, secretary-manager of the Chamber of Commerce, was one of the forward-looking men who were influential in crystallizing public support for the new lights. Now that they are installed, he says that the merchants are more than pleased with the results. "This represents a 100% improvement in our business area—definitely! We're happy about the results."

Mayor Bishop sums it up: "The new lighting certainly has been a benefit to the community. We have heard enthusiastic comments from everyone—not just our own citizens but people from out of town as well. They see that Hollister is a progressive community."



***Mayor Bishop and City Manager Brady refer to Hollister's long-range master street-lighting plan whenever requests for lighting arise.***

Enthusiasm has carried over as interest in improving street lighting in residential areas. The master plan provides for the gradual improvement of the residential streets. The City Council will carry out this program, making annual budget increases as required.

LANIER S. BRADY
*City Manager*

## Mercury Vapor Extensions In Marinette, Wis.

In the last few years, we have extended the mercury vapor lighting in accordance with the length of new street work undertaken. This year's program includes lighting on the approaches and on the Wisconsin portion of the Interstate Bridge of Menominee-Marinette Harbor. This lighting will be with 21,000-lumen lights.

We have been using Union Metal steel standards with the transformer base and Westinghouse luminaires and lamps. We are laying new cables in fiber conduit and underground circuits and connecting together street lighting circuits provided by the Wisconsin Public Service Corp.

ROBERT J. POSS
*City Engineer*

Doc,
It all started when
I couldn't get this
Duncan V.I.P. open!

TWO HOUR TIME LIMIT
TIME EXPIRED
INSERT COIN. TURN HANDLE TO RIGHT AS FAR AS POSSIBLE AFTER EACH COIN.
A DUNCAN METER
Underwriters Laboratories, Inc.

**V. I. P. EXCLUSIVE**

*Submerged mystic-lock* increases security to the coin compartment. Non-exposure virtually eliminates malicious lock area vandalism.*

*Trade Mark

# THE ONLY THING VANDALS GET FROM THE DUNCAN V.I.P.* IS A COMPLEX!

Outstanding results obtained from installations in highly vandalized areas prove that only the Duncan V.I.P. meter offers genuine security to meter revenue.

Patented sealed coin box system continues Duncan's maximum protection to collected revenue from meter location to city collector office.

***V**ault **I**nsured **P**rotection against vandalism

- TAMPER-PROOF BOLTED DOOR
- BURGLAR-RESISTIVE HOUSING
- PATENTED SEALED COIN BOX

**DUNCAN PARKING METER**
Division of Motor Products Corporation
835 NO. WOOD STREET • CHICAGO 22, ILLINOIS

# Ontario's Bright Burlington Bay Skyway

To thousands of American visitors to Canada who travel to Toronto from Niagara Falls the Queen Elizabeth Way is remembered as the 82-mile link between the two cities. Until 1958, delays were inevitable on weekends at the Burlington Lift Bridge, where traffic backed up for a mile in each direction while a ship passed through.

In October 1958, the Burlington Bay Skyway, which runs parallel to the old road, was officially opened as a toll bridge with four lanes. The Skyway itself is one mile long, rising to a height of 210 feet. The approaches extend for 1¾ miles on either side. The complete stretch of 4½ miles is lighted. On the Skyway, four-lamp fluorescent luminaires (by Canadian Westinghouse Co. Ltd.) provide the brightest section. The approaches are equipped with 120 double-davit and 50 single-davit Pfaff & Kendall tapered aluminum poles. These standards support Powerlite "Fluorline" two-lamp fluorescent luminaires, each giving 18,800 lumens and mounted at 30 feet. Spacing betwen poles is 150 feet.

Gone is the previous bottleneck. From the City of Hamilton that encloses the harbor and rises to what is locally known as "The Mountain" the Burlington Bay Skyway at night is a string of over 300 twinkling lights across the mouth of the harbor.

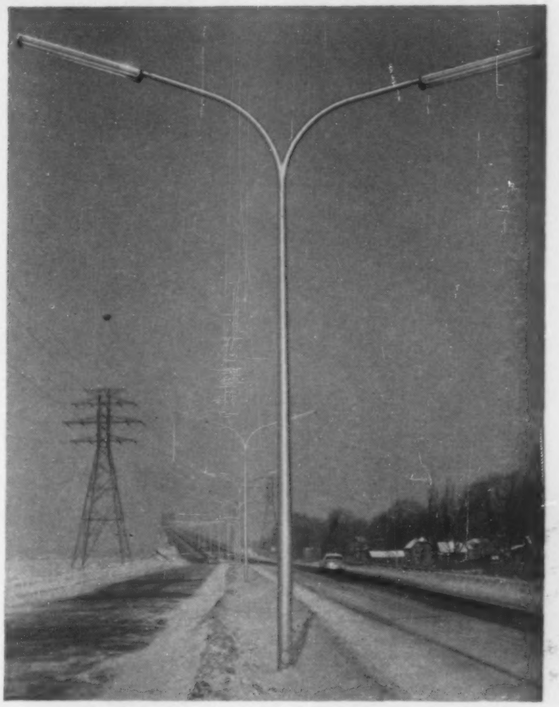
## History

The first lighting of rural highways in Ontario really began in 1940 with the opening of the Queen Elizabeth Way, Canada's first major dual-lane highway. Incandescent luminaires were installed in a continuous system for 87 miles, but wartime shortages of power and blackout restrictions caused this system to be discontinued.

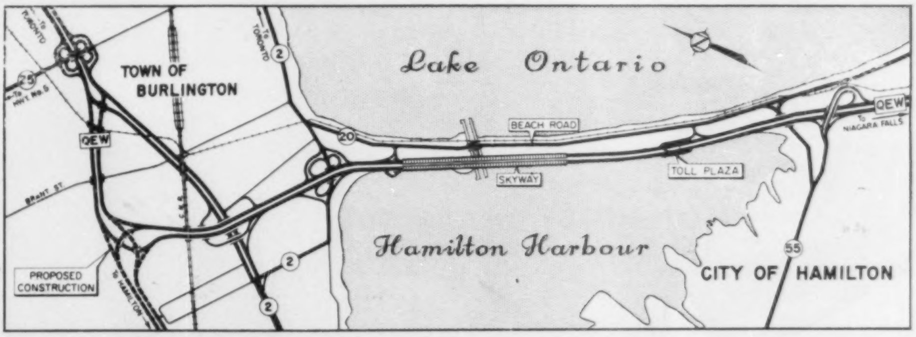
This highway has been reconstructed with full control of access and widening to six lanes on heavily travelled sections where traffic runs as high as 12,000,000 vehicles per year. All interchanges are lighted as part of this process of modernization which has reduced the accident rate to 2.1 as compared with an average rate of 4.4 per million vehicle miles on all of our King's Highway system.

In the last few years, the Ontario Department of Highways has expanded its lighting program. Our policy is to light major interchanges, channelized intersections, bridges and hazardous points on the recommendation of our Planning Engineer. The Traffic Section, which keeps detailed records of every reportable accident on the King's Highway system, is in the best position to spot accident-prone locations. With the steady increase in traffic and our desire to make our highways as safe as possible, we will continue to increase the number of lighting installations.

FRED M. CASS
*Minister of Highways*
*Ontario, Canada*



***The west approach to the Burlington Skyway with its double-davit aluminum poles carrying two-lamp fluorescent luminaires.***



***The skyway and its approaches, now the brightest night spot on Ontario's highways, broke the traffic bottleneck at the canal into Hamilton harbor.***

# "SURE I'M A TOUGH BUYER"

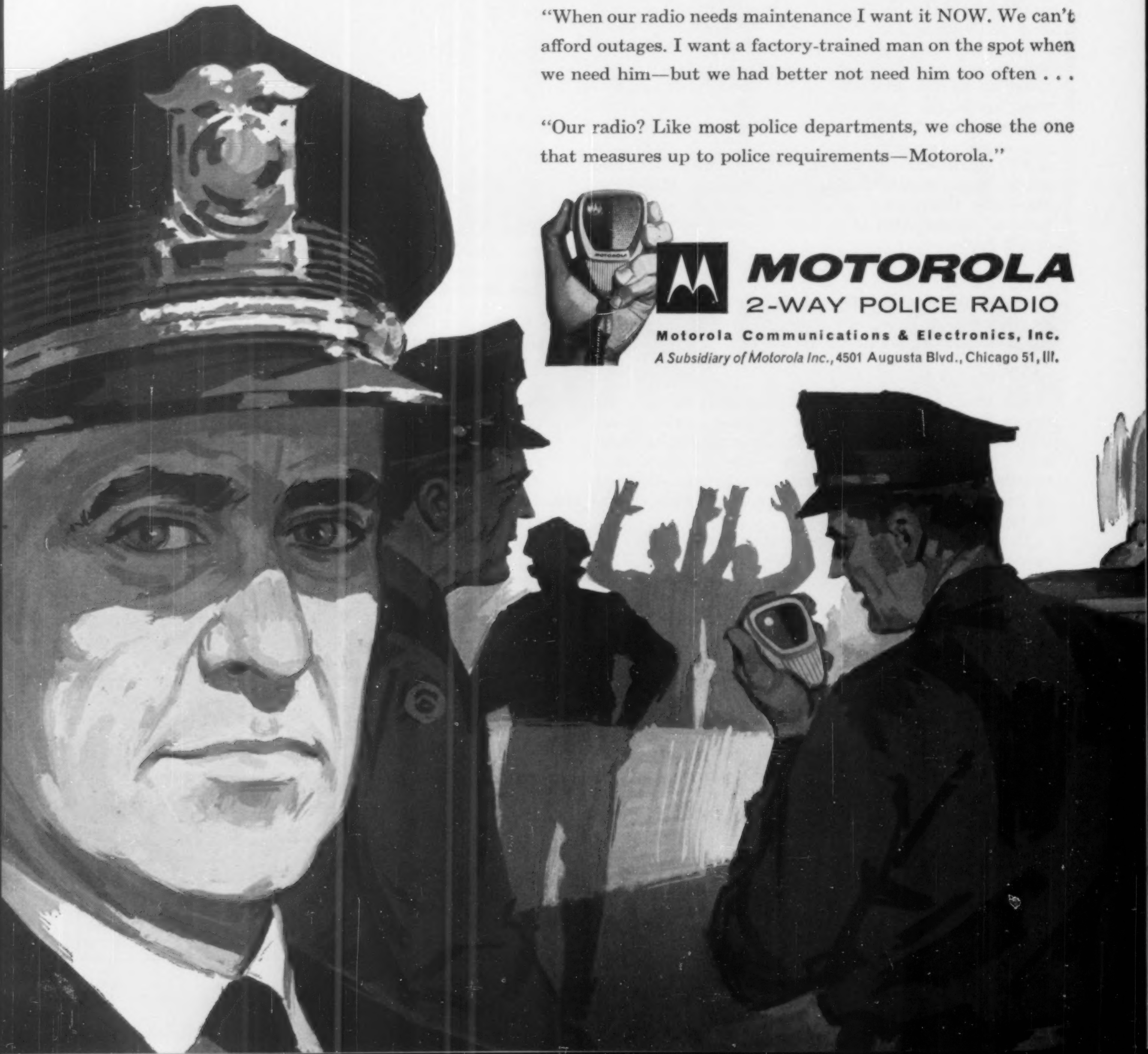
"I expect one hundred percent performance from every man in my department. I can't expect less from the equipment I put in their hands.

"Take 2-way radio, for example: I want the very latest improvements that engineers can come up with—but *not* at the expense of reliability. Our equipment must be field-tested and proved before I stake my men's lives on it. I demand equipment that can take it—day in and day out. I don't coddle my men—I *won't* coddle their equipment.

"When our radio needs maintenance I want it NOW. We can't afford outages. I want a factory-trained man on the spot when we need him—but we had better not need him too often . . .

"Our radio? Like most police departments, we chose the one that measures up to police requirements—Motorola."

**MOTOROLA**
2-WAY POLICE RADIO
**Motorola Communications & Electronics, Inc.**
*A Subsidiary of Motorola Inc.*, 4501 Augusta Blvd., Chicago 51, Ill.



*The freeway system in Fort Worth.*

# Fort Worth Freeway Breaks the Rules

## . . . and brings assets to the city by doing so

By **W. J. B. BAKER**
Planning Director

With the recent completion in Fort Worth, Tex., of the downtown elevated freeway which forms the link between the East-West Freeway and the Fort Worth-Dallas Turnpike, the city became the first in Texas to have a freeway from city limit to city limit, a distance of more than 17 miles.

Fort Worth can claim another distinction: it is one city that has been truly benefited by freeways which traverse the developed areas.

Freeways are planned primarily as service facilities to move large volumes of intrastate and interstate traffic at rapid speeds from one region to another. Second consideration is given to urban traffic and the effect of the facilities on the cities; therefore, the benefits to the individual cities vary considerably and no city, including Fort Worth, can claim that the effect of freeways is entirely good.

When the circumferential-radial system is used, as in Fort Worth, few planners will dispute the advantage of having the loop or circumferential freeways which route traffic around the central area and tie the various radiating freeways and thoroughfares together; however, the radial freeways which cut through the city present a different picture.

The freeways unless skillfully planned can devalue adjacent property, create barriers in neighborhood units, disorganize thoroughfare systems, and multiply downtown traffic problems by dumping heavy volumes of traffic in the business district.

The character of the city and the location of these radiating freeways determine whether the advantages will outweigh the disadvantages or vice versa. In Fort Worth the completed freeways bisect the city and then cut one section in half again, but the particular character of the city has caused these seeming disadvantages to become assets.

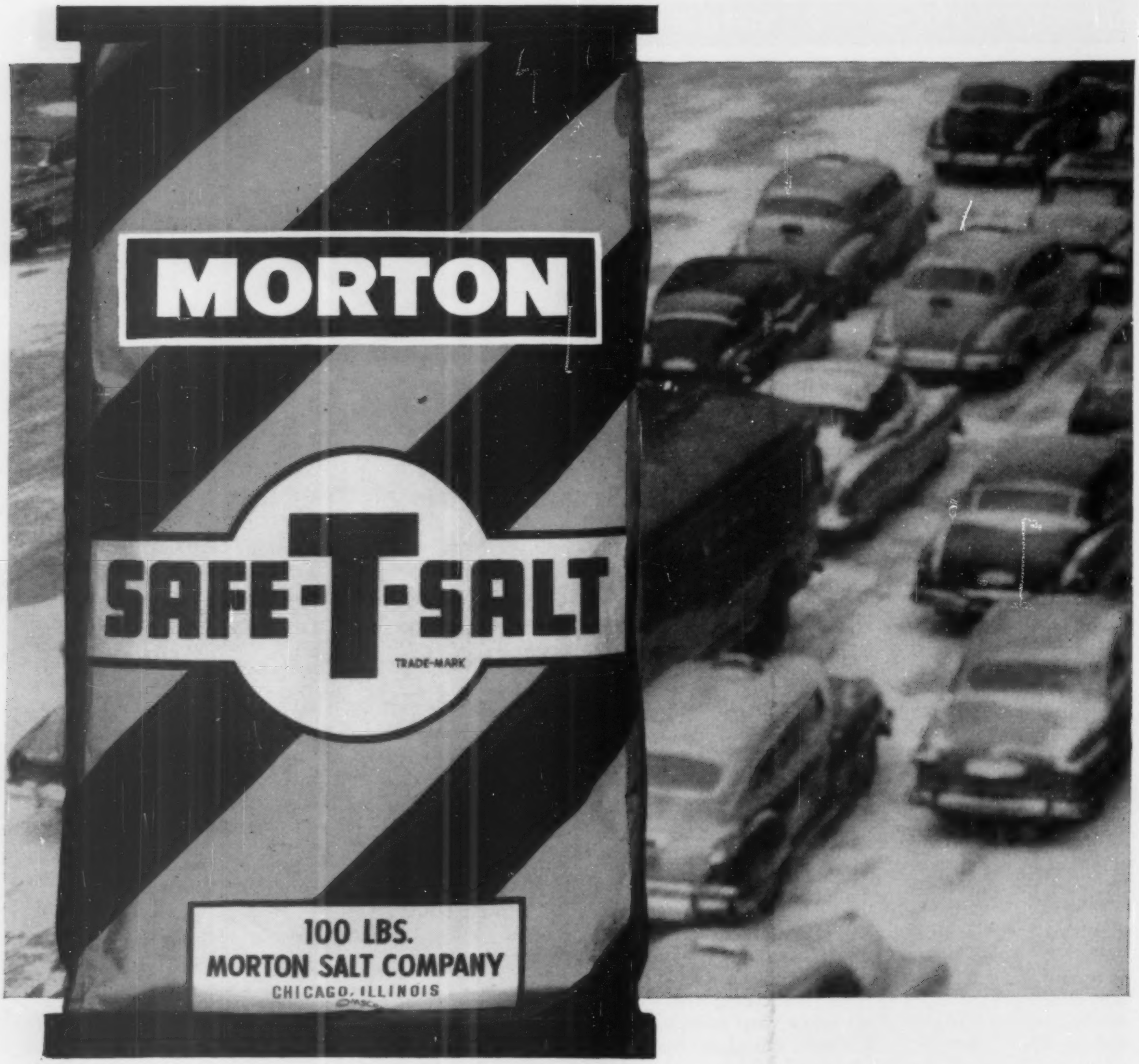
The city is unique in that its population of 356,000 is spread out over an area of approximately 150 square miles with a density of only 2,400 people per square mile. There are two major reasons for this low density: first, a large portion of the population of Fort Worth consists of young families who prefer to live in their own homes away from the central commercial area; and second, the twelve radiating railway lines and the many branches of the Trinity River with their flood plains form barriers to development and cut the city into isolated units.

Another factor which contributes to the peculiar character of Fort Worth is that this city, which has long been one of the railway distribution centers for the Southwest, is fast becoming a motor transportation hub for that area.

Upon examining these various characteristics, it becomes apparent that the city depends on the motor vehicle for both special and economic reasons. There is now one motor vehicle for every two people within the area. The large area and number of vehicles make it imperative that a means of rapidly transporting them be developed.

For this reason, freeways were necessary for Fort Worth and it was an added bonus that many of the usually harmful characteristics of these service facilities would be turned into advantages because of their locations and the structure of the city. Freeways created a by-pass for the traffic-congested thirty-mile highway to Dallas; they split over-sized neighborhood units and brought new life into heretofore inaccessible areas; they supplemented existing overcrowded thoroughfares and caused the creation of new, badly needed ones; and they caused the clearance of several acres of blighted areas. In essence, the freeways have unified the city.

When the entire system is completed, with the loop freeways, and, if future legislation permits, public parking garages at the central termini of the radiating freeways, the situation in Fort Worth will be even better. Admittedly, the future of Forth Worth would not be as bright if the city did not have such unlimited possibilities for corporate expansion. As residential, commercial, and industrial development moves outward along the freeways, the city can move outward to encompass it. ◄◄



# MAKES YOUR STREETS SAFER, YOUR JOB EASIER!

Public safety is the basic reason for salting streets and highways. Morton Safe-T-Salt* is a product named to explain this function to the public. Morton Safe-T-Salt makes your job easier because it constantly reminds the public of the primary reason for salting treacherous pavements and helps promote what you do to reduce the hazards of winter driving.

Designed to meet your specifications, Morton Safe-T-Salt is a screened, graded, economical rock salt that makes your streets and highways safer by ridding them of dangerous ice and packed snow—quickly and thoroughly. Morton Safe-T-Salt gives *immediate abrasive traction* against skidding, *penetrates deep ice* and *quickly melts* the bond between ice and street surface.

**Safe, clean, economical**—Non-toxic and easy to handle, straight Morton Safe-T-Salt will not clog sewers or leave a rutted dirty pavement as will sand and cinders. Moreover, rock salt *melts more ice at lower cost* at any temperature above 8° F. than any other commonly used ice melting chemical or abrasive.

Available in bulk or 100-lb. bags, Morton Safety-T-Salt also is ideal for stabilizing roads. So order enough now for your winter ice and snow control program. Any Morton Safe-T-Salt left over can be used in your summer road stabilization projects.

*Safe-T-Salt is a trademark of the Morton Salt Company

**MORTON SALT COMPANY**
INDUSTRIAL DIVISION
Dept. AC9
*110 No. Wacker Drive, Chicago 6, Illinois*

# Parking Meters In Waikiki

*On the beach . . .*

The City and County of Honolulu has installed 2,871 meters for curb-side street parking, and 1,788 meters on off-street lots. This is a total of 4,659 Magee-Hale Park-O-Meters.

Parking meters are located in the central business district, and in Waikiki, Kaimuki, Kalihi and Pawaa districts of Honolulu. These are areas where there was a keen demand for parking space; yet, the turnover was limited due to all-day parkers.

Our parking meters have made it easier for the police to enforce parking regulations. Motorists find it easier to find parking spaces. The end result is that the merchants benefit and the city gets new revenues.

Prior to March 1960 the rate for curb parking was five cents per hour; for off-street parking, ten cents per hour with a three-hour maximum limit.

After March, the rates have been ten cents for curb parking, and five to ten cents with a three- to ten-hour maximum on parking lots.

The 1959 revenues were $171,426 for parking on the 11 lots, and $219,242 for curb parking. This was an annual total of $390,668, an average of $85 per meter.

Parking meters were first installed in Honolulu in 1952. The number then was 1,770. The merchants of the city are continually asking for additional installations.

LAWRENCE FELIX
*Traffic Engineer*
*Honolulu, Hawaii*

INFORMATION CENT
KAUAI-OAHU-MAUI-HAWAI

*. . . and on Kalakaua Avenue.*

# Uniform Wording Urged by Sign Manufacturers

Six of the nation's leading manufacturers of die-embossed traffic signs have joined in an educational program to urge city, town and highway officials to standardize traffic-sign wording, shapes and colors.

"National standards recommended in the Manual on Uniform Traffic Control Devices for Streets and Highways * should be followed more closely," said William L. Desloge of Grimm Stamp & Badge Co., St. Louis. "Everything we can do toward making traffic rules uniform among the states—and the cities and towns within each state—will help save lives and property."

Yet, as was pointed out by Robert H. Bjorklund

*(Continued on page 149)*

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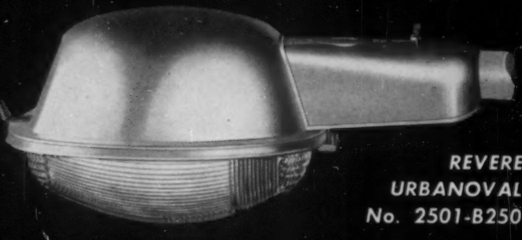
* This manual was prepared by a joint committee of American Association of State Highway Officials, the Institute of Traffic Engineers, the National Conference on Street and Highway Safety, and was published by the Public Roads Administration, Washington, D. C.

**REVERE**
**UNITIZED URBANOVAL**
**No. 2531-B175**



**REVERE**
**URBANOVAL**
**No. 2501-B250**

*New Revere 2500 Series Urbanoval luminaires use 100, 175 or 250-watt mercury lamps. Unitized Urbanoval features built-in constant-wattage or reactor ballasts. Conventional Urbanoval is designed for external ballasting. Both types are available with or without mounting adapter for E.E.I.-NEMA standard plug-in locking-type photo-electric control. Choice of Revere-Corning Pyrex® molded prismatic refractors provides I.E.S. Type II or Type II—4-way distribution (or Type III or 4-way with phosphor-coated lamps). Available with 1¼" or 2" slipfitter.*

# NEW FAMILY OF REVERE LUMINAIRES

New *unitized* oval mercury luminaires with built-in ballast components are the latest addition to the Revere family of street lighting equipment. New 2600 Series Endoval luminaires provide high-level, glare-free illumination for arterial streets and highways. New 2500 Series Urbanoval luminaires are designed to provide economical lighting for residential areas or secondary streets where uniform, low-level lighting is desired. Both series offer the advantages of modern styling, substantially reduced installation costs, and efficient, economical performance.

Revere's new unitized luminaires together with newly designed conventional luminaires let you solve every street and highway application problem the one *best* way. You can select high quality, design-matched Revere luminaires, poles and equipment specially engineered for every street lighting need. *Send for complete catalog information and technical data.*

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ELECTRIC MFG. CO.

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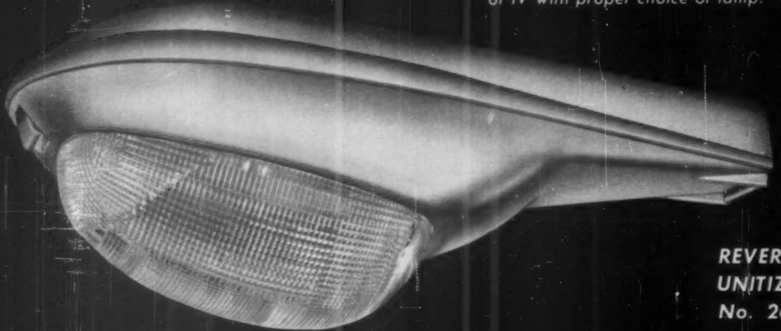
Long Distance Phone: NIles 7-6060 • Chicago Phone: SPring 4-1200 • Telegrams: WUX Niles
*In Canada: Curtis Lighting, Ltd., Leaside, Toronto, Ontario*

*New Revere 2600 Series Endoval luminaires use 250 or 400-watt mercury lamps. Unitized Endoval features built-in constant-wattage or reactor ballasts. Conventional Endoval employs same housing, reflector and Revere-Corning Pyrex® molded prismatic refractor, but without built-in ballast components. Both types are available with or without mounting adapter for E.E.I.-NEMA standard plug-in locking-type photo-electric control. Adjustable socket positions produce A.S.A.-I.E.S. Types II, III, or IV with proper choice of lamp.*



**REVERE**
**UNITIZED ENDOVAL**
**No. 2633-B400**

*(Continued from page 147)*

of Lyle Signs, Inc., Minneapolis, suburbs of major cities are employing traffic signs with wording and coloring different from that used by the parent city.

"Motorists confronted by varying shapes, wordings and colors of traffic signs having the same meaning have a tendency to miss seeing them," said Cecil Clarke of Miro-Flex Co., Inc., Wichita. The manual specifically prescribes standard wordings, shapes, colors, sizes, designs of letters, specifications for embossing as well as standard weights and thicknesses of metals. "Officials in charge of traffic signs might well memorize the six basic sign shapes, and remove all signs which do not comply with them."

### "Shapes of Safety"

These shapes are (1) The Octagon, for the stop sign; (2) The Rectangle, for speed limits, turning, passing and parking regulations; (3) The Diamond, a warning of some hazard or unusual condition on the road ahead; (4) The Circle, only one message—Caution; (5) The Crossbuck, marking the highway-rail intersection; (6) The Triangle, for "Yield Right of Way."

"Non-standard wordings throw the motorist into a mental block," said John Montgomery of National Safety Engineers, Birmingham, Ala. "In one large mid-western city there are 28 different wordings to express the same message—Trucks Prohibited. In another city, half the STOP signs are the 'gabby' kind. In addition to the main message they say: State Highway, Thru Street, School Crossing, Four Way, Dead End, etc. A STOP is a stop. Additional wording is unnecessary."

Steve Adams of S. G. Adams Co., St. Louis, said that "Uniformity of wordings, sizes, colors and shapes among communities and states would reduce slaughter on our streets and highways. A half-dozen non-uniform signs in a community tends to create disregard for all traffic signs. My particular peeve is basement-shop or shed-on-a-lot produced signs that bear only slight resemblance to the original. They may be cheaper but it is like trying to enforce the law with a water pistol."

To sum up the efforts of the die-embossed sign manufacturers' campaign, Brad Smith of Gopher Stamp & Die Co., St. Paul, Minn., said, "We intend to take this message to every community in the nation and to every highway department in the fifty states." ◄◄

## Placing STOPs to Get Attention

Last year the City of Nyssa, Ore., replaced all yield-right-of-way signs with stop signs conforming to both the Manual on Uniform Traffic Control Devices and the Oregon Technical Bulletin No. 24. The latter bulletin incorporates most of the material in the national standards manual with adjustments to fit local conditions and regulations.

According to the motor-vehicle laws of Oregon a motorist shall yield the right of way to traffic approaching an intersection from the right. A "Yield Right of Way" sign states, in effect, that a motorist shall yield the right of way in all directions and, consequently, the use of such a sign is contrary to the state law.

Our community, being rural farming, had difficulty in bringing to the attention of its citizens the changes in intersection signing. To promote a more rapid recognition of the stop signs, all posts have been painted red and white. All posts are made of treated wood and measure four inches square by ten feet long. They are sunk two feet in the ground in concrete. The three feet just above the ground are painted red and the three feet above that to the bottom of the reflectorized sign are painted white. The remaining two feet are painted red to correspond with the color of the back of the sign.

Citizen comments have been most favorable and, while it is true that some people will miss the signs no matter what their size or color, psychological attitudes have been changed through color.

A. H. Colby
*City Manager*

## School Traffic Accidents Are Out

Columbus, Ohio's capital city, has a school protection program now covering the 75 main schools facing on major or secondary streets, while an additional 15 or more schools on less-traveled streets will also have an improved traffic program. Here is the program of Chief Traffic Engineer John L. Gallagher:

1. **Motorists approaching from either direction will receive their first warning from a large, Plastix "SCHOOL" legend on the pavement.**
2. **Next warning is a 24-inch, curb mounted "SCHOOL" sign of traditional diamond shape, some with flashing lights.**
3. **Another curb-mounted "SCHOOL, 20 M. P. H." sign.**
4. **Crosswalks outlined with white Plastix 6″ x 6″ blocks, plus a curb-mounted "SCHOOL CROSSING" sign.**

Mr. Gallagher is using permanent, reflectorized Plastix made by Prismo Safety Corp., Huntingdon, Pa. The legend pictured has been in use on much traveled Livingston Avenue, in front of Christ the King Parochial School, for over a year and shows no sign of traffic wear. ◄◄

# London's Traffic Begins to Hurt

Londoners evidently are learning what the automobile, a standard by-product of a higher standard of living, means to urban traffic. London's quaint, picturesque streets apparently are choking. And the planners' drafting boards are preparing dramatic relief measures.

One of these plans, summarized here, won the second prize in the International Competition organized by the Roads Campaign Council, "New Ways for London." The article is a condensation of the summary made by W. K. Smigielski, author of this plan and published in the April 1960 issue of the *Journal* of the Town Planning Institute, 18 Ashley Place, London S. W. 1.

The map shows proposed roads for London's central area forming a system of elevated motorways supplemented by a network of main local roads (streets) at ground level.

The estimated future traffic flows are of such magnitude that it is evident that more road space is required. For example, Piccadilly would have to be widened to four times its present width to cope with the future flow of 6,000 vehicles per hour!

The scheme proposes to abandon the widening of existing streets and to introduce a network of high capacity elevated motorways, (140 feet wide) between building lines, designed parallel with and at the backs of existing streets and in certain parts over the railway lines. The total capacity of both levels—the upper for fast, the ground level for local traffic—would be 8,000 vehicles per hour.

The cost would be formidable, about $500 million ($11 to $16 million per mile including cost of land acquisition and replacement.) Underground roads would be at least three times more expensive and would create almost insuperable difficulties with underground railways and services.

At present over 50,000 cars are parked for the whole day and over 100,000 cars are parked for less than two hours in the streets of London's central area. The scheme provides the following parking accommodation:

**(a) *fringe car parks* on platforms at the 20-foot level over the extensive areas of railway sidings, freight yards, etc., attached to the railway stations: total capacity 42,000 cars.**

**(b) *multi-storey garages* attached to the elevated motorways with no links with the existing streets; total capacity 30-40,000 cars.**

**(c) *multi-storey garages* attached to the main local roads, either four-storey and served by ramps or ten-storey and served mechanically.**

**(d) *underground parking garages* in areas of comprehensive development.**

**(e) *parking places* located at the backs of shops.**

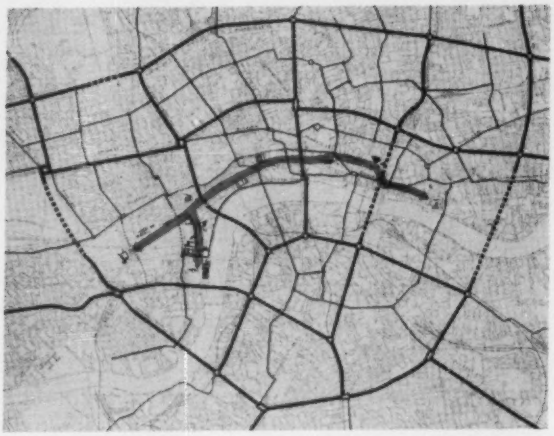
**(f) *curb parking with parking meters* for short parking.**

The parking garages should be built simultaneously with the new roads or otherwise the new roads would defeat their purpose by attracting more cars and contributing to further congestion. Parking would be regulated by prices, the cheapest in fringe car parks, and the dearest in the center.

To save London, the present harmful policy of half measures should be abandoned and a new road plan implemented in stages. A new Design Office should be organized with the strictly defined task of producing a master plan for London.

This is not only an engineering problem but an extremely complicated town planning problem which should be considered on a national, regional and local scale. The new office should be composed of town planners, engineers, architects, sociologists, and economists.

Only a big plan, a great economic enterprise and forceful Government action can save London from physical and economic disintegration. ◄◄



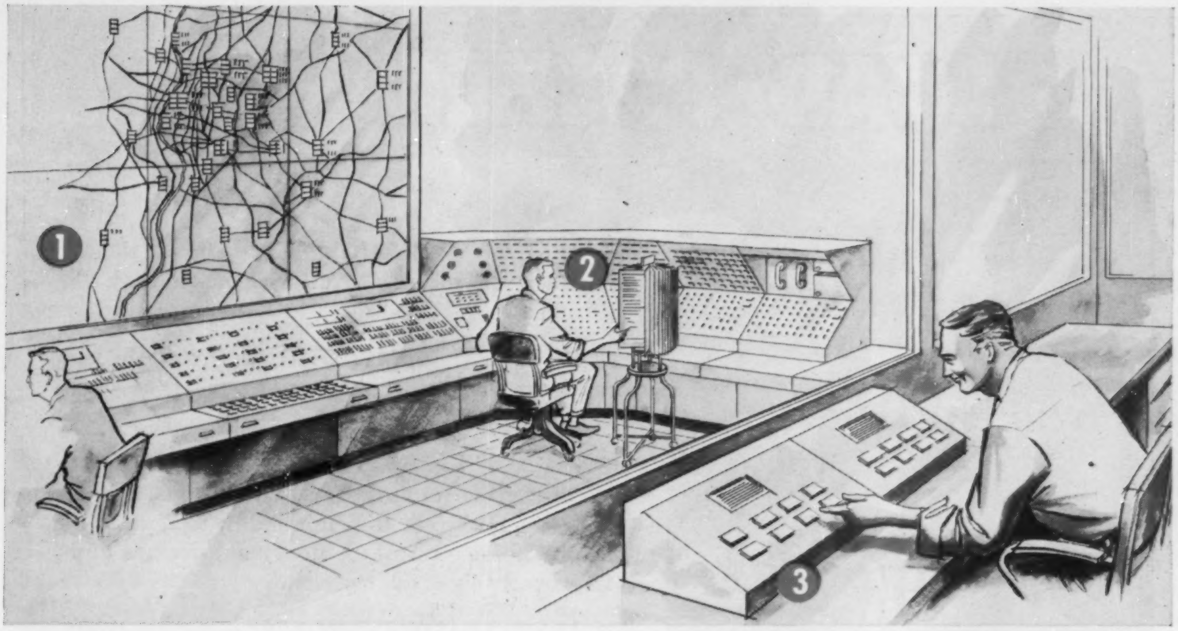
***Road proposals for London's central area by W. K. Smigielski; the historic route from Buckingham Palace to the Tower of London (with a branch to Westminster) is marked by the broad band of grey.***

## New Potomac Crossings

Because the number one traffic jam in the District of Columbia is a direct result of the limited number of Potomac River crossings, the District of Columbia Government and the Maryland State Roads Commission are constructing four new Potomac River bridges: the Theodore Roosevelt, the George N. Mason, the Woodrow Wilson, and the Cabin John bridges.

Brig. General A. C. Welling, Engineer Commissioner for the District of Columbia, stated recently about the four bridge crossings of the Metropolitan reach of the Potomac River, "Hardly anything like it since the Allied Army crossings of the Rhine River."

ERNEST S. MILLER
*Special Assistant to the*
*Engineer Commissioner*
*Washington, D. C.*



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## *GRS Master Dispatch System gives YOU effective command of every situation through the co-ordinated control of all facilities*

A whole new concept in fire control, the GRS Master Dispatch System co-ordinates all your metropolitan fire control facilities . . . providing accuracy despite the complications of the expanding metropolis.

① Your LOCATER MAP shows the entire metropolitan area. Locates fire houses and equipment. Identifies status of equipment as In Quarters, On Assignment, On Air, Off Duty, or Fill In. Other arrangements are possible to meet your special needs.

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③ At your COMMAND STATION you can monitor all communications. You can view the Locater Map as its coded lights instantly acknowledge your deployment of equipment.

**RESULT:** *the right equipment to the right place when it's vitally needed.* GRS Master Dispatch System gives you the ultimate in co-ordinated control; gives your community a new level of fire protection. To your departmental staff it means speed and accuracy . . . the convenience of easier operation . . . and peace of mind.

**Each GRS Master Dispatch System is built to the specific needs of the area it serves. The system illustrated was designed to meet the needs of Rochester and the County of Monroe, New York.**

Your new GRS Master Dispatch System will be designed, built and installed by General Railway Signal Company, for over fifty years manufacturers of highest quality dispatch and control equipment.

Send for complete information.

The GRS Master Dispatch System Is Another Development of

THE ELECTRONIC CONTROL DIVISION

**GENERAL RAILWAY SIGNAL COMPANY**

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2. **GREATEST COMPACTION**—Direct thrust compaction packs more per yard than any competitive unit.

3. **BIGGEST LEGAL PAYLOADS**—Biggest loads on any given chassis for two reasons. First, dead weight is cut to a minimum; second, telescopic hoist eliminates heavy sub-frames and improves weight distribution.

4. **LARGEST LOWEST HOPPER**—Big 1½ cubic yard, 74 inch wide hopper, plus low loading height.

5. **SAFEST, MOST DEPENDABLE**—Controls are simple, foolproof. Operator has positive control. Fewer moving parts, less linkage, few adjustments.

6. **GREATEST ECONOMY**—Biggest hopper and fastest packing cycle cut fuel costs and equipment wear.

Find out more about the efficiency-engineered, BIG SIX performance of the Load-Packer 600 from your Gar Wood - St. Paul truck equipment distributor. Ask him to show you the colorful, sound film, "The BIG-6 Story" soon.

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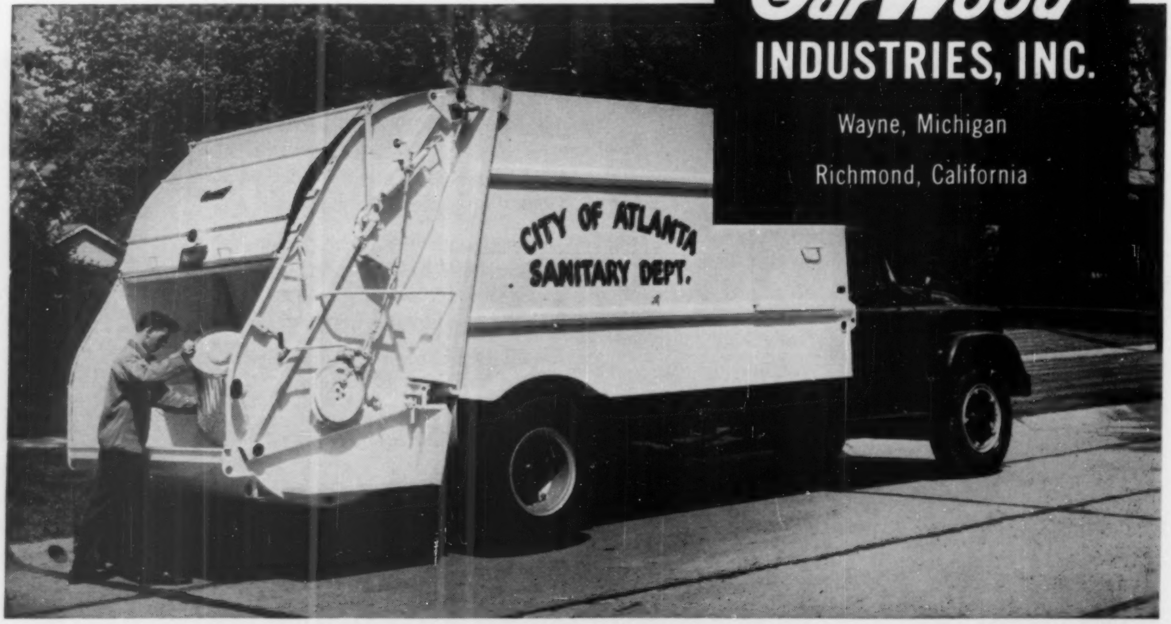
Wayne, Michigan
Richmond, California



# Uvalde, Texas, Reviews All Its Service Charges

### Water, sewerage, gas, refuse charges are now on a simplified basis with realistic earning factors

By **R. W. EVANS**
City Manager

*New refuse collection rates make it possible to finance new up-to-date collection equipment and more frequent service.*

Uvalde recently reviewed its rate schedules for those municipal services operating on a utility basis and simplified some of them, placing them on a basis that provides realistic cost-of-service financing. Under the present program, a small residence can receive the water and gas it needs and be assured of sewer and refuse collection service, all for as low as $4.85 per month.

We decided to review our rates during the summer of 1959, retaining the consulting firm of Black and Veatch to make the study. The firm assigned A. P. Learned, senior member of the firm, to make the necessary investigations and prepare the report. He delivered the report before the end of the year. Uvalde adopted it *in toto*, effective January 1st of this year. It covers the municipal services of garbage collection and disposal, natural gas distribution, sewerage, and water supply and distribution for this south Texas county seat of 11,500. A summary of each is shown below.

## Garbage Collection and Disposal

We collect from 2,618 residences twice a week and from 330 commercial establishments six days a week, all within our city limits. Currently we dispose of the refuse in an open dump. We make the collections with modern trucks equipped with Pak-Mor closed, compactor-type bodies.

For the year ending June 30, 1959, an audit revealed that our current rates provided an income of $37,128 which met expenses of $18,538. However, our expenses did not provide allowance for depreciation on trucks, office overhead, social security and retirement costs. Nevertheless, if we included the costs, our

### Natural Gas Rates

**RESIDENTIAL MONTHLY RATES**

| *Cubic Feet* | | *Inside City* | *Outside* |
|---|---|---|---|
| First 1,000 | per 1,000 cu. ft. | $1.50 (Min.) | $2.00 (Min.) |
| Next 9,000 | " " " " | .70 | .75 |
| " 40,000 | " " " " | .60 | .65 |
| All in excess | " " " " | .55 | .60 |

**COMMERCIAL MONTHLY RATES**

| *Cubic Feet* | | *Inside City* | *Outside* |
|---|---|---|---|
| First 100,000 | per 1,000 cu. ft. | .55 | .60 |
| Next 100,000 | " " " " | .45 | .50 |
| Excess | " " " " | .40 | .45 |
| | | | |
| Minimum monthly charge | | $2.75 | $5.00 |
| Public Buildings | | .40 monthly | per 1,000 cu. ft. |

### Water Rates

Residential and commercial service, minimum billing per month per meter size, including water use cost.

| | *Inside City* | *Suburban* |
|---|---|---|
| ⅝" | $1.60 | $2.50 |
| 1" | 2.50 | 3.50 |
| 1½" | 4.75 | 5.75 |
| 2" | 6.75 | 7.75 |
| 3" | 15.00 | 16.50 |
| 4" | 20.00 | 23.00 |

**RESIDENTIAL USE**

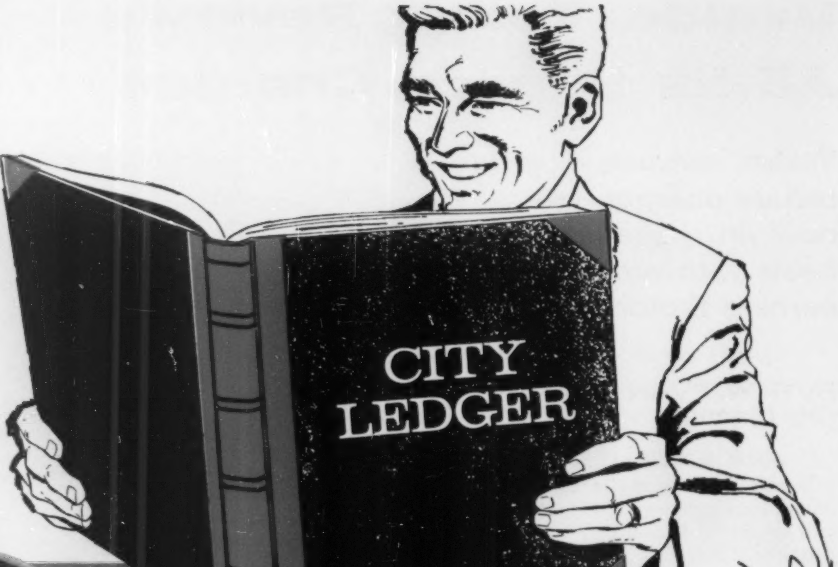
| | *Inside City* | *Suburban* |
|---|---|---|
| First 5,000 gallons | $.35 per M | $.40 per M |
| Next 10,000 gallons | .15 " " | 20 " " |
| All over 15,000 gallons | .10 " " | 15 " " |

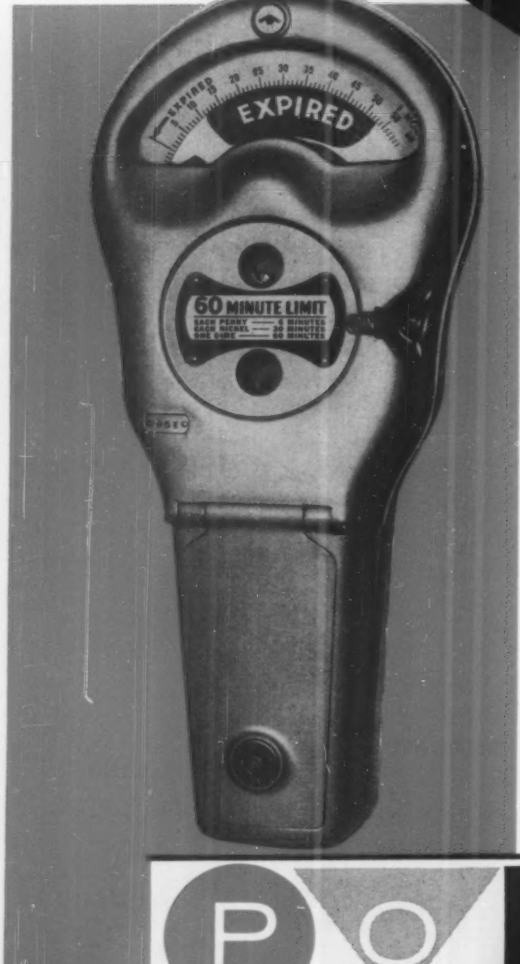
**COMMERCIAL USE**

| | *Inside City* | *Suburban* |
|---|---|---|
| First 10,000 gallons | $.35 per M | $.40 per M |
| Next 15,000 gallons | .15 " " | 20 " " |
| All over 25,000 gallons | .10 " " | 15 " " |

**For a residence on a ⅝" meter the total minimum bill of $1.60 per month would permit the use of a little over 4,500 gallons of water.**

*(Continued on page 155)*





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- No exposed working parts.
- Distinctive colors for coding of time zones.

POM

MAGEE-HALE
PARK - O - METER COMPANY
3909 Willow Springs Road • Oklahoma City, Okla.

LEADING THE INDUSTRY FOR 25 YEARS

*(Continued from page 153)*

expenses would total only $26,139, or well below our income.

Consequently we left the old rates, established in August 1, 1958, intact. These rates run as follows:

| ***Residence*** | ***Per Month*** |
|---|---|
| **1-family** | **$1.00** |
| **2- "** | **1.75** |
| **3- "** | **2.50** |
| **4- "** | **3.75** |
| **6- "** | **6.00** |
| ***Commercial*** | |
| **General** | **$1.75** |
| **Motel or two offices** | **1.85** |
| **Stores** | **3.60-4.30** |
| **Hotel** | **5.25** |

We do not collect trash, lawn clippings, tree or shrubbery cuttings. We currently plan to change from an open dump to a covered sanitary fill. The present rates should absorb the added cost.

## Natural Gas

The last annual audit showed that our natural gas system had receipts of $166,509 and costs of $130,997. Since its earnings are satisfactory, we made no change.

We give no free gas to any user. For example, the city pays for gas used in City Hall just as does any other customer. Only large commercial customers were increased.

The sewer-rate study has been designed to correct irregularities.

Our sewer system has 152,680 feet of pipe, five lift stations and a sewage purification plant. This provides primary treatment with separate sludge digestion. However, the effluent from the primary tanks goes to a 17-acre lagoon for further purification. The lagoon effluent irrigates a 75-acre hay farm. The system has a value of $567,000 and a bonded indebtedness of $117,000. The bonds are the general-obligation type and pay an interest rate of 2½% and 2¾%. Our present sewer-service charges produce a revenue of $21,174. The operation requires expenses amounting to $13,936 for 1959, without depreciation charges. We serve 1,496 residential and 268 commercial establishments under 45 classifications

We have revised our rates for this service so that we can provide for depreciation and other expenses. The new rates are 75c per month per family. A multi-family residence is charged on the basis of the number of families. The new rates increase charges to laundries, bottling plants and similar businesses.

We charge all others a minimum bill of 75c for the first 5,000 gallons of water plus 5 cents for each additional 1,000 gallons used per month.

## Water Rates

The city obtains its water from eight wells driven into limestone aquifers. The distribution system serves some 3,000 customers. The system has a value of $870,000, and a bonded indebtedness of $168,000 in general obligation bonds and $34,000 in revenue bonds.

Our last audit indicated receipts of $106,429, expenses of $48,505, and a depreciation allowance of $16,573. A cost-of-service analysis indicated costs should be shared as follows:

| | |
|---|---|
| **Capacity demand** | **46.5%** |
| **Commodity<br>(power and chemicals)** | **9.0%** |
| **Customer costs** | **44.5%** |

"Cost of Service" includes:

- **All operating expenses incurred**

***(Continued on page 156)***

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HUB OF THE HARBOR AREA
INCORPORATED 1953
CITY OF ANCHORAGE
NOV. 23, 1920

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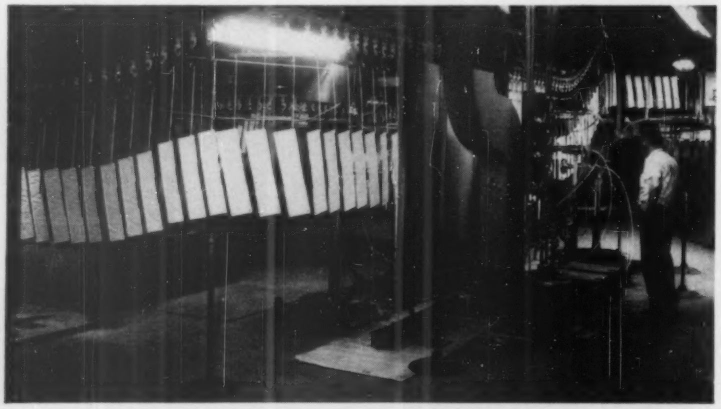
And, whatever materials you select, Lyle's know-how assures you of highest quality. For example, tested and time proven, the steel blanks are a hot dipped, continuous process galvanized material, bonderized after fabrication. This special steel Lyle uses costs so little more than non-rust proofed material—yet lasts many times longer. Available too, are various types and gauges of aluminum sheeting and extrusions, and high density plywood.

Consider also finishes. Choose from baked enamel or reflective materials. Available are the latest and most improved types of reflector buttons, reflective sheeting, reflective spheres applied directly by Lyle to binder material overlaid on baked enamel, and reflective liquid coating.

Processes available include Lyle's famous deep embossing for highest legibility due to 3rd dimension, flat lettering and screen processing.



When baked enamel finish is indicated, LYLE provides the highest quality you can buy, and at competitive prices. The photo above shows a section of Lyle conveyor type baking ovens. Specially formulated paints are applied with controlled pressure. Then, carefully timed at controlled temperature, the finish is baked for a sparkling lustre, free from blemishes, blisters or cracks of any kind. Presto! An attractive, durable sign.

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SIGN MANUAL
Lyle

Lyle SIGNS, INC.
2722 University Avenue S. E.
Minneapolis 14, Minnesota

(Continued from page 155)

- An allowance for depreciation
- A return on the investment
- Payment in lieu of taxes
- An allowance for average annual additions to the system.

We omitted the last two items in our cost calculations, largely because revenues will not support them.

"Demand Capacity" costs include largely those that would be incurred irrespective of the water pumped, such as:

- Office salaries
- General labor
- Maintenance
- Interest on debt and other fixed charges.

"Commodity Costs" vary with the quantity of water pumped; electric power; chemicals, etc.

"Customer Costs" are those attributable to customers, such as meter reading; billing; distribution system operation and maintenance; bad debts; meters; office equipment.

The city provides water without charge to public buildings and the Garner Memorial. The water system gets no revenue from public fire protection in the form of hydrant rental; neither does it make a contribution to the general tax fund. The old rates had 18 different residential and 20 different commercial schedules. They also were far lower than those charged in other Texas cities. These have been simplified and are shown in the table of water rates on page 153.

The new rates are based on a study of 33,500 residential customer monthly bills in 1958. These showed that slightly over half were minimum bills. Of the 2,630 commercial customers, 47% were minimum users.

We also established charges for tapping the water mains. These run as follows:

| Tap | Charge |
|---|---|
| ¾-inch | $35.00 |
| 1 " | 45.00 |
| 1½ " | 55.00 |
| 2 " | 75.00 |

If we must cut concrete paving and replace it, we make an additional charge of $5.50 per square yard. If we cut into asphalt or gravel streets, the charge is $2.50.

The new rates should allow us to build up funds to reinforce the distribution system and provide larger feeder mains. ◄◄

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Find out how much better lighting you can get with Wide-Lites—and how much less it costs! Send the coupon today.

**Resists vandalism!** Wide-Lites are made of rugged cast aluminum and have tempered glass lenses to resist vandalism and the punishment that floodlights get from wind and weather. Relamping is easy, but with 7000-hour lamp life (seven times as long as incandescent), it's seldom needed!

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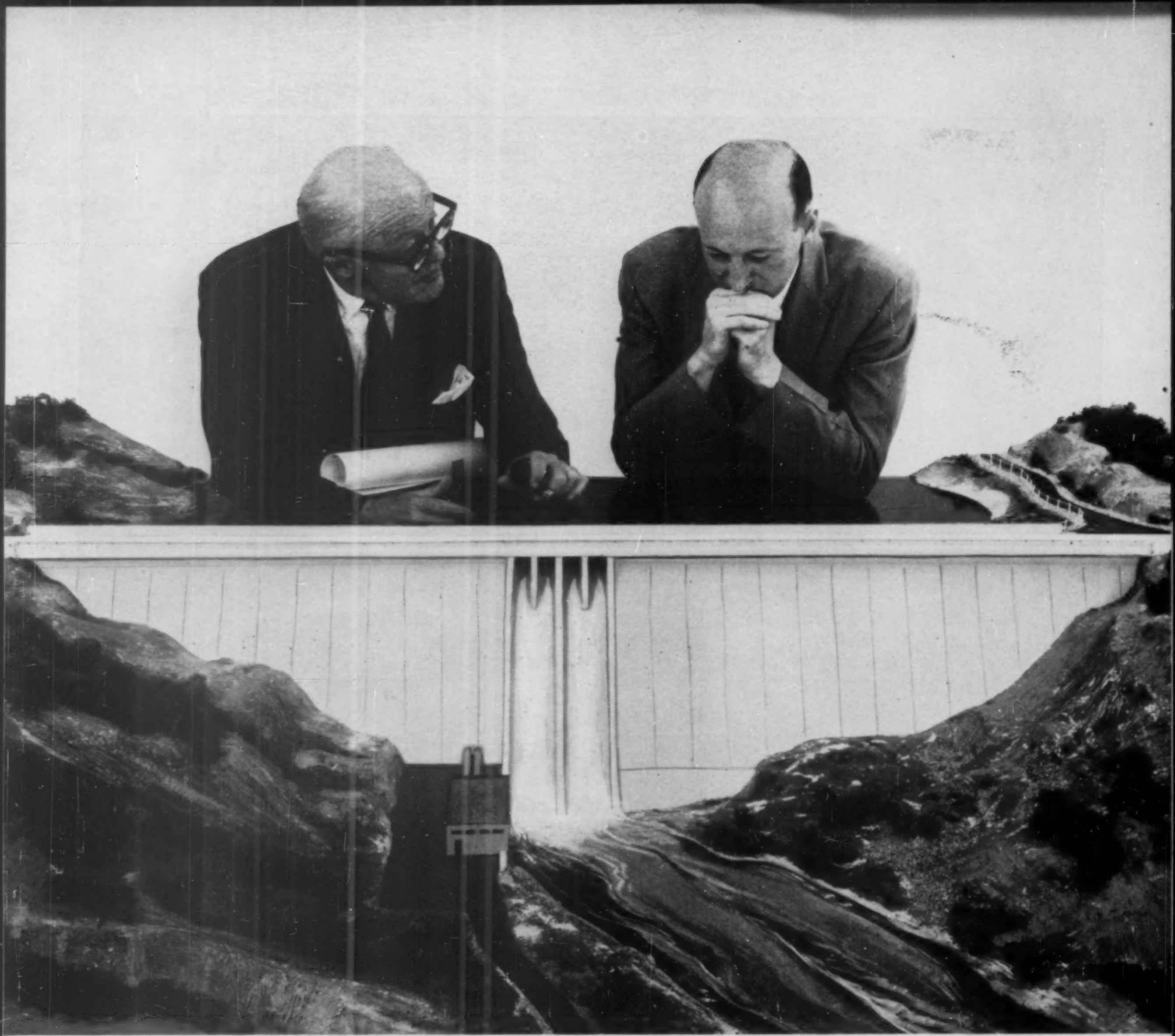

MODEL DAM BY R. S. BALDWIN

When it comes time to appoint a trustee or fiscal agent for revenue bonds, The Chase Manhattan Bank is at the service of state, county and municipal authorities. Chase Manhattan has the staff and experience to handle this function as trustee or fiscal agent in cooperation with banks in the areas where the projects are located. For complete details write: Corporate Trust Division, The Chase Manhattan Bank, 40 Wall Street, New York 15.

# Organization of the Fire Chiefs' Host— The Rochester Fire Bureau

By **G. L. HOLZCHUH**
Fire Chief

The City of Rochester, N. Y., is governed by nine city councilmen, five elected by the people at large and four by the people according to districts. The Council appoints the City Manager who is the fiscal head of the administration. The Commissioner of Public Safety, appointed by the City Manager, is responsible for the Bureaus of Fire, Police, Parks and Playgrounds, Buildings, Weights and Measures, Traffic Control and Public Safety Radio. All members of the Fire Bureau including the fire chief are appointed by the Commissioner of Public Safety. The fire chief is assisted by an executive deputy chief.

The Fire Bureau operational budget for the last year was $3 492,777 including $3,282,072 (94%) for salaries. This does not include the purchase of new equipment or fire stations. These items are charged to a separate capital improvement budget.

The table of organization of the Fire Bureau shows a total of 602 uniformed men and 38 civilian employees. There are 528 officers and men assigned to fire stations. The Line Division also includes three deputy chiefs, 15 battalion chiefs and their drivers. The Line Division is divided into three groups, each headed by a deputy chief. The city is divided into four battalions, with a battalion chief on duty with each. Three floating battalion chiefs fill in when the regularly assigned battalion chief is off duty or on detached duty for training or inspection work. Each fire company is commanded by a fire captain. The other two groups in each company are commanded by a fire lieutenant

The Line Division works 56 hours per week. Each member works a four-day tour of duty from 8 A.M. until 6 P.M. He is off duty until 6 P.M. the second day following his last day of day duty. He works four nights from 6 P.M. until 8 A.M. He is then off duty until 8 A.M. on the fourth day following his last night of duty. The beds in quarters may be occupied between 9 P.M. and 7 A.M.

## Training

The Training Division is commanded by a deputy chief. Recruit training classes, in-service company training, officers' training and specialized classes are held at the Fire Academy. Each company officer holds a two-hour training class daily at the fire station; monthly reports are submitted to the Training Division by each company. The Training Division publishes a training manual that is used as a guide for company training.

Fire prevention activities are the responsibility of the fire marshal, a deputy chief assigned to this duty by the fire chief. He is the enforcement authority for the city fire-prevention code which is patterned after the suggested Code of the National Board of Fire Underwriters.

The Engineering Division and the Repair Division are commanded by a deputy chief assisted by a fire equipment maintenance supervisor, one assistant supervisor and five senior maintenance mechanics. The Building Maintenance Division makes all repairs to the fire stations.

*(Continued on page 161)*

**FIRE BUREAU SALARIES**
**Effective July 1st, 1960**

| | Start | Step 1 | Step 2 | Step 3 | Step 4 |
|---|---|---|---|---|---|
| Fireman | 4602 | 4836 | 5068 | 5334 | 5598 |
| Lieutenant | 5334 | 5598 | 5862 | 6126 | 6420 |
| Captain | 5862 | 6126 | 6420 | 6750 | 7086 |
| Battalion Chief | 6750 | 7086 | 7410 | 7776 | 8172 |
| Deputy Chief | 7776 | 8172 | 8568 | 8970 | 9432 |
| Executive Deputy Chief | 8568 | 8970 | 9432 | 9864 | 10362 |
| Fire Chief | 10362 | 10854 | 11418 | 11946 | 12540 |

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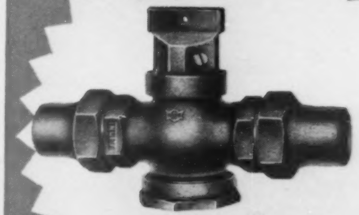
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**O'Brien**
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O'Brien makes a complete line of sewer cleaning equipment. Every unit is the exact answer to a specific cleaning requirement and reflects O'Brien's long experience and familiarity with the field. Economy, efficiency, and convenience of operation are built into every piece of equipment.

***O'Brien Power Rodder:***

matchless driving and pull-back power, unexcelled for bucket threading and general sewer maintenance. 1200 ft. capacity can be used with either 5/16 or 3/8-inch rod. Equipped with automatic safety throw-out, positive rod drive, and footage meter.

***Bucket Machine and Dumper:***

featuring exclusive O'Brien hopper. Bucket dumps into hopper; after repeated bucket travel, full hopper is dumped into truck. Use of hopper eliminates truck and traffic tie-up during cleaning operation which relieves truck for many hours of other duties while hopper is being re-filled. 9 hp., 16 hp., and 25 hp. models available.

***Sewerking Cable Machines:***

compact, powerful, economical cable rodder. Ideal for removing roots, grease, sludge and general sewer waste. Four Sewerking cable models available with capacities from 250 to 600-feet.

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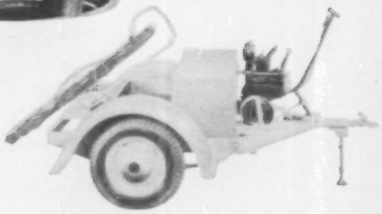

O'Brien
Power
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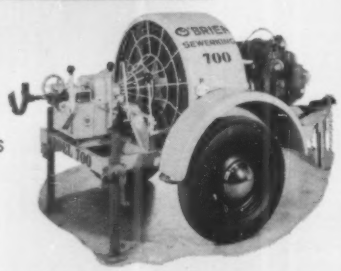
Dumper



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*(Continued from page 159)*

The Supply Division has charge of all supplies including hose and breathing apparatus. One man is always available to deliver extra air tanks to the scene of a major fire.

The communication system of the bureau is controlled by two separate divisions. The Fire Alarm Maintenance Division is commanded by a superintendent responsible for the operation and maintenance of the Gamewell System and the Fire Bureau telephones. The Dispatch Center is commanded by the chief fire dispatcher. Radio repairs are made by the Bureau of Public Safety Radio.

Members of the Fire Bureau are allowed sick leave with full pay. They are granted 15 days of furlough after one year of service, 21 days after five years, and 28 days after twenty years.

Members injured on duty are given leave at full pay until able to return to duty. All members, off duty because of injury or illness, are under the command of the department physician.

## Pensions

Two pension systems are in effect in the Fire Bureau. Members appointed prior to 1932 are in the City Pension System. They are eligible to retire at not less than half pay after 25 years of service and 55 years of age. Retirement is mandatory at 70. In the event of line-of-duty death, the widow of one of these members receives half-pay.

Members who were appointed after 1932 are members of the New York State Employees' Retirement System. Members elect their retirement age when they join the System. Retirement benefits are based on an approximate quarter pay pension plus an annuity purchased by the members' contribution. Members injured in line of duty may retire on ¾-pay pension. Mandatory retirement age is 70 years under this system.

The men are paid bi-weekly according to the yearly salary schedule which is shown in the table on page 159.

Dress uniforms are furnished as required. Three sets of fatigue uniforms are furnished at appointment and two additional sets yearly. Boots, rubber coat and helmet are also furnished.

Appointments and promotions up to and including battalion chief are made from lists furnished by the Municipal Civil Service Commission. Position on these lists is determined by written examination plus seniority and experience. Appointments to the position of deputy chief, deputy executive chief and fire chief are made by the Commissioner of Public Safety without examination.

Under a merit rating system, awards are made for outstanding bravery, exceptional performance of duty, and conscientious service. These awards are based on recommendations from commanding officers. These recommendations are forwarded to a board composed of officers of the National Guard, Naval Reserve, Army Reserve and city and county governments. The Civil Service Commission recognizes these awards and allows from one to five points on promotional examinations for recipients.

The fire dispatching office is the "nerve center" for the operation of the Monroe County Mutual Aid System. The City of Rochester has a written agreement with each fire

*(Continued on page 163)*

**TAKE A LONG LOOK AHEAD BEFORE BUYING SIGNS**

**MIRO-FLEX** **EMBOSSED SIGNS GIVE YEARS OF EXTRA SERVICE**

You can be sure you're making the best buy in street name assemblies and traffic control signs when they are Miro-Flex. These high-quality signs are embossed to provide extra strength, rigidity, and legibility. They are finished to perfection for years of service in the most rugged of conditions. Miro-Flex can fulfill practically all your sign requirements and at prices that fit your budget year after year. Write for your free copy of the Miro-Flex catalog and prices.

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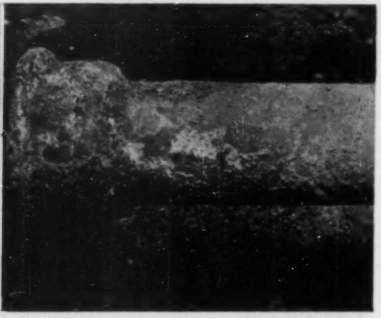
# TIME IS THE Only TEST THAT TELLS

1816 MONTREAL, CANADA
*10" Water Main*

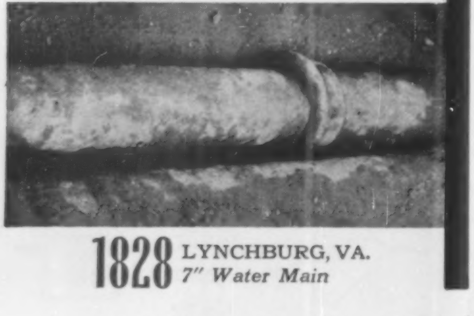
1834 READING, PA.
*4" Water Main*

1834 BALTIMORE, MD.
*10" Gas Main*



1830 PHILADELPHIA, PA.
*6" Water Main*

1831 RICHMOND, VA.
*8" Water Main*



1828 LYNCHBURG, VA.
*7" Water Main*

Many claims for "long life" and "low maintenance" are being made today by many kinds of johnny-come-lately substitutes for permanent CAST IRON PIPE.

But none of these claims are backed by the *only test* that provides positive proof of the length of time that pipe will give trouble-free service in city water mains. That test is TIME.

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That's why this year, as every year, more miles of underground Cast Iron water mains are in use than all other kinds of pipe combined.

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*Cast Iron Pressure Pipe Industry*
*by ......*

**WOODWARD IRON COMPANY**
Since 1882
WOODWARD, ALABAMA

*(Continued from page 161)*

district in Monroe County for the operation of this system. During major fires in the city or any of the fire districts, the movement of apparatus is controlled by the county fire coordinators in the fire districts and by on-duty battalion chiefs in the city. The responsibility for such movements is delegated to the fire dispatchers in order that responses may not be delayed.

## Location Board

Constant knowledge of the location and disposition of all apparatus is essential for the efficient operation of this system. This is accomplished by what we believe to be the most modern apparatus location board in the fire service.

This is an 8x8-foot fire-apparatus-locater map mounted vertically on the dispatchers' console so as to be visible to dispatchers. It has 243 individual lights designating each piece of fire apparatus in the county and city. The lights are color-coded to identify type of apparatus and display identification numbers. The lights are arranged on the map in the approximate geographical locations of the fire houses at which the respective apparatus is located.

The radio transmitter consoles are for the two previously existing transmitters and for two new Motorola 250-watt transmitters operating at 154.31 and 154.13 mc.

The guyed antenna mast, 250-feet high, was installed complete with beacon lights on the premises of the Fire Bureau.

A Remington Rand Visible Index reference system lists the streets and roads in the county and city, with associated dispatching data.

The principal element of this master dispatch system set up by General Railway Signal Co., Rochester 2, is the dispatcher's console which also houses county and city radio transmitters, three new Gamewell fire alarm registers, and five Dictaphone recorders. Remote control permits operation of radio, telephone and intercom equipment and selective calling of all fire houses. ◄◄

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and you'll agree . . .

### The New 1960 Asplundh Chippers Are Best for Municipalities

Asplundh Chippers are rugged, absolutely safe, are engineered for continuous, trouble-free service. They chip faster than any other chipper in the world; are easily maintained, simple in design, require less labor and materials cost.

**New 1960 features include:**

- **new wedge locking bar assembly** for simpler, faster blade maintenance
- **replaceable floor plate,** eliminates need for housing disassembly
- **larger diameter cylinder journals** for a stronger chipping unit
- **removable cutter bar assembly** to facilitate service
- **optional blower unit** to preclude chute stoppage when chipping large volume of dense or wet foliage

**DECIDE WITH THE FACTS** . . . write for complete information . . . ask for names of users near you. Best of all, ask for a DEMONSTRATION WITHOUT OBLIGATION. What could be more conclusive?

**Write today—**

**ASPLUNDH**
**CHIPPER COMPANY**
501 York Road, Jenkintown, Pa.
TUrner 7-2500

Proven in service by the world's largest tree company

## "'K&M' ASBESTOS-CEMENT

# LAYS AS FAST AS

**Assembling 16" "K&M" Asbestos-Cement Pressure Pipe by hand** without the aid of a bar. The backhoe merely steadies and aligns the pipe. The easy, two-step operation consists of (1) lubricating the tapered end of the pipe, and (2) sliding pipe into coupling.

## PRESSURE PIPE

# A SHOVEL DIGS...”

### G&B Construction, Inc., Youngstown, Ohio, installs 4½ miles of “K&M” Asbestos-Cement Pressure Pipe for the Austintown District of Mahoning County, Ohio

*“You can lay ‘K&M’ Pipe as fast as a shovel can dig. There is nothing that will hold you back with this pipe. When you can lay a 16″ water line, and it goes in as easy as an 8″ water line, what more could you ask? They’ve got a good joint with that FLUID-TITE® Coupling . . . the pipe is wonderful to put together. Of all the ‘K&M’ Pipe we’ve laid, we never had a coupling break.”*

Those are the comments of Louis Gulfo, partner with Mike and James Bertilacci in G&B Construction, Inc. They installed “K&M” Asbestos-Cement Pressure Pipe in bitter cold, during February and March 1960. However, neither rain, snow, nor mud interrupts the installation of this modern pipe. The exclusive, patented “K&M” FLUID-TITE Coupling and the simple fitting procedures required make assembly easy.

Little or no maintenance will face Mahoning County, which built and will operate the system for a year, or the City of Youngstown, Ohio, which will then take it over. Being non-metallic, “K&M” Asbestos-Cement Pressure Pipe won’t rot, corrode, or tuberculate, and is immune to electrolysis. The suppliers of this pipe were Trumbull Plumbing Supply Co., Warren and Youngstown, Ohio.

Now, in addition, you may use quality “K&M” Plastic Pressure Pipe in the same system with “K&M” Asbestos-Cement Pipe, if desired.

*Write today for more information* on “K&M” Asbestos-Cement Pressure Pipe to: Keasbey & Mattison Company, Ambler, Penna. Dept. P-590.

K·M
BEST IN ASBESTOS

Keasbey & Mattison at Ambler

**Left to right:** Louis Gulfo, G&B Construction, Inc.; Dale MacCleary, sales manager, Trumbull Plumbing Supply Co.; James Bertilacci, G&B Construction, Inc., Burke Lyden, Asst. Chief Engineer, Youngstown, Water Dept., Jim Bisciglia, Asst. Engineer, Mahoning County, and J. Henry Painter, Trumbull Supply Company.

**3 miles of 16″ “K&M” Asbestos-Cement Pressure Pipe were installed.** Here, we see it ready for installation along Webb Road, in Austintown Township. In branching from the 16″ water line, Mahoning County used 1 mile of 12″ “K&M” Asbestos-Cement Pressure Pipe and ½ mile of 8″ “K&M” Asbestos-Cement Pressure Pipe. Specifications call for 90 lbs. pressure when line is in operation serving 16,000 residents.

**CITY OF CHARLOTTE, NORTH CAROLINA recently built a new road to its sanitary land fill area. Compaction of the road base was handled by this Huber-Warco 10-ton 3-wheel roller, one of three owned by the city.**

# HUBER-WARCO

# 3 wheel rollers

## SIZES FROM 10 to 14 TON

Huber-Warco 3-wheel rollers are made in General Purpose, Finishing, and Variable Weight models to fit every 3-wheel roller need.

**TORQUE CONVERTER** tailshaft governor and two speed transmission are standard. Doubles available power, cuts fuel costs, increases life of machine components one-third to one-half.

**SPECIAL SUB FRAME** suspended at three points carries engine and transmission assembly and cushions outside shocks to increase machinery life.

**GUIDE ROLL** assembly has tapered roller bearings and is completely adjustable. Retains factory new adjustment indefinitely. Kingpin housing is removable.

**OTHER FEATURES** include replaceable tire design, differential lock, variable speed hydraulic steering, pressure sprinkling system, choice of gasoline or diesel engines.

*A trusted product name backed by respected distributor names from coast to coast*

| MOTOR GRADERS | TANDEM ROLLERS | 3-WHEEL ROLLERS | MAINTAINER |
|---|---|---|---|
| Standard transmission models from 83 to 160 H.P. Torque converter and power shift transmission models from 102 to 195 H.P. | 3-5 Ton • 4-6 Ton Retractable • 5-8 Ton • 8-10 Ton • 8-12 Ton • 10-14 Ton | 10-Ton • 12-Ton • 14-Ton Standard Weight 10-12 Ton • 12-14 Ton Variable Weight | M-52 — 45½ H.P. Attachments are Lift-Loader, Broom, Bulldozer, Patch Roller, Scarifier, Snow Plow, Berm Leveler |

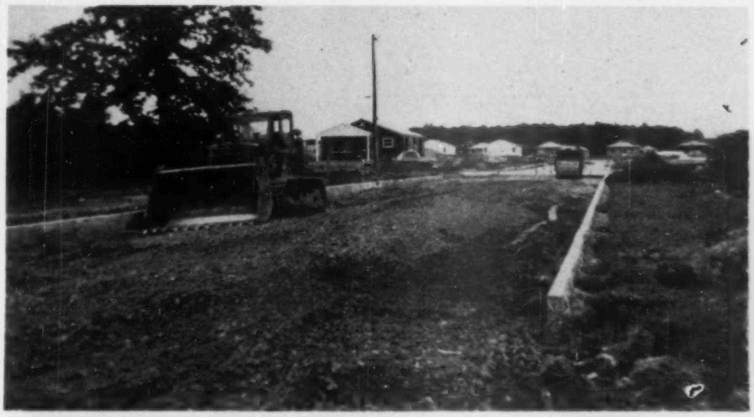
**HUBER-WARCO COMPANY Marion, Ohio, U.S.A.**

# Self-Financing Street Program

## . . . brings high-value, low-maintenance streets to Niagara Falls, N. Y.

By **LLOYD F. KNIFFIN**
Director of Public Works

*Starting with an unimproved street like this . . .*



*. . . city forces grade, place curb and slag for the sub-base, using the city's Drott Skid-Shovel on an IH TD14 tractor . . .*

Some municipalities charge new street costs entirely to the general taxpayer through the annual budget. Others finance such costs by issuing bonds which subsequently are also paid by the general taxpayer. Still other communities defray costs by special assessments against the abutting property owner. Niagara Falls lies in this third category but with some differences.

Faced with the problem of continually mounting street maintenance costs, the city council of Niagara Falls adopted a policy that:

- ***All* unimproved streets will be built to certain minimum standards and, the costs of such improvements will be assessed against the abutting property owner.**

This policy has been in effect since 1947. In the ensuing 13 years the city has built approximately 6½ miles of streets annually to the folowing minimum standards:

- **Pavement width—30 feet**
- **Granite curbs**
- **Concrete base—minimum thickness, six inches**
- **Bituminous concrete top—minimum thickness, three inches**
- **Catch basins at frequent intervals as required by sound engineering judgment**
- **Drain tile to intercept subsurface water**
- **Planting strip (margin) fine graded.**

In recent years the construction cost has averaged $30 per linear

*(Continued on page 168)*

*. . . and top this with a concrete base and asphalt surface to produce a neat, low-maintenance, long-lasting street.*

*(Continued from page 167)*

foot or, expressed in terms familiar to the homeowner, $15 per front foot.

These costs include (in addition to the labor, material and equipment rental charges) office overhead, a proportionate part of administrative salaries, vacation and holiday pay, workmen's compensation insurance, etc. (but do not include engineering salaries). If the property owner wishes to pay on the installment plan, he may do so in ten annual amounts plus interest at 2½% on the unpaid balance.

Approximately 95% of the streets built under this program have been residential. Where traffic density or character warrants a wider pavement or a thicker base, the resultant increased cost is borne by the general taxpayer. We are assuring priority in street building by requiring a majority petition of the abutting owners before including their street for any specific year.

After the city council adopts each year's portion of the paving program, it awards contracts for the installation or rehabilitation of storm drains, sanitary sewers or water mains (if not already installed). These costs are charged to bond issues and the amortization costs, in turn, are paid by the general taxpayer.

We do the actual street construction work by force account. The city hires 100 to 120 extra, temporary men (laborers, pavers or equipment operators) during the construction period from April through October.

We excavate generally by using power shovels (¾ and 1 cubic yard), but when the cut is light, we use our city-owned, multi-purpose tractor shovel. Any unstable areas are further excavated and refilled with slag (which is a local by-product).

In areas with particularly difficult drainage problems we rebuild the sub-base of slag as shown in the picture on page 167.

## Concrete Specifications

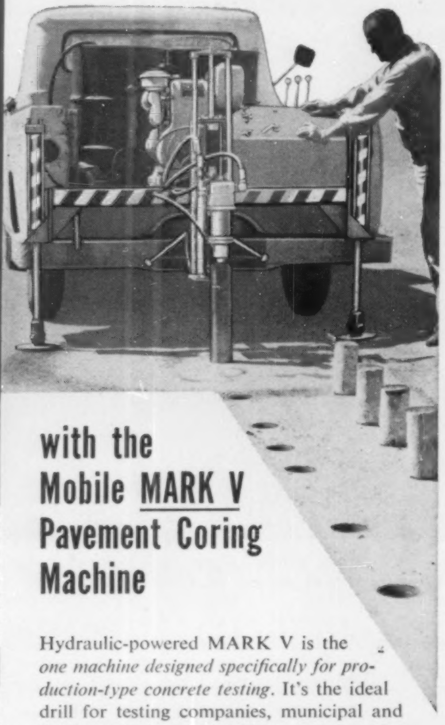
Concrete for the base is transit-mix 2,500-psi portland cement concrete containing 4½ bags of cement per cubic yard and with a maximum slump of three inches. We use reinforcing mesh only where subgrade conditions warrant the extra cost. The La Salle clay (so prevalent in the subgrade in Niagara Falls) has so much fine material passing a 200-mesh sieve that it needs the strengthening effect of a concrete base in order to insure a long-life pavement.

The bituminous concrete tops consist of a two-inch binder course and one-inch finish course, placed with a city-owned Barber-Greene spreader. Both the binder and stone-filled sheet asphalt finish courses are central-plant, steam-dispersion mixes. Butt joints are preheated with an infra-red heater mounted on the side of the spreader so that previously laid material is plastic before the adjoining strip of black top is laid.

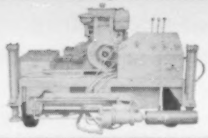
## Reduces Maintenance Costs

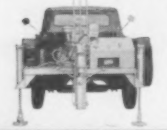
The steady ungrading of our streets by means of this paving program has enabled the city council to make major reductions in the budget appropriation for strictly maintenance work. We are convinced that money expended for building high-standard streets is a wise expenditure of taxpayer's funds. ◄◄

drill
ONE INCH
every
30 Seconds
in
steel-reinforced
concrete



with the
Mobile MARK V
Pavement Coring
Machine


MARK V is available ready-mounted on Mobile custom-designed trailer.


MARK V mounts on any carrier with ½-ton minimum capacity.

MARK V hydraulic stabilizers insure perfectly balanced coring.

Hydraulic-powered MARK V is the *one machine designed specifically for production-type concrete testing.* It's the ideal drill for testing companies, municipal and federal agencies, contractors . . . anyone who wants *accurate cores, in quantity, at the lowest possible cost per foot drilled.*

- MARK V 20⅞" stroke easily extracts smooth, uniform cores from 2" to 10" in diameter and up to 18" in length. Drill head assembly rotates to 90° for angle drilling and highway travel. Compact, self-powered MARK V mounts in minutes on any lightweight truck or trailer. Ask about MARK V custom trailer.
- "Cushioned" hydraulic feed automatically maintains the correct drilling pressure and rate of feed . . . provides exceptional operating ease . . . absorbs drilling vibration to insure up to *one-third longer diamond bit life.*

*Write for complete specifications, prices and delivery information . . .*

MOBILE DRILL

**MOBILE DRILLING, Incorporated**
Dept. 12 • 960 N. Pennsylvania St. • Indianapolis, Indiana

At Westchester County's New Rochelle Sewage Plant:

**Bitumastic coatings still sound after 5 years service on concrete tank walls**

Opened in 1955, the New Rochelle Sanitary Sewer District plant is designed ultimately to serve a population estimated at 81,000 by 1975. In designing for the future, County engineers of the Department of Public Works recognized the problem of plant and equipment protection: that's why they specified that certain areas in the plant be protected with Bitumastic coatings.

On the settling tanks shown, two coats of Bitumastic® Super Service Black were applied to all concrete surfaces to prevent erosion at the water line. On trash racks and other intermittently submerged metal surfaces, the same coating system was applied. A recent inspection after five years of operation showed that these protected areas still require no recoating.

Bitumastic coatings were used on the inside of four concrete digesters, too. A base coat of thick, heavy-duty Bitumastic No. 50 covered with Bituplastic® No. 28, a coal tar emulsion-type coating, helped to seal the domes of the digesters against the corrosive effects of condensation.

Sanitary engineers in all states are familiar with the proved protective qualities of Bitumastic coatings. For a booklet describing their specific applications in this field, use the coupon. Koppers Company, Inc., Tar Products Division, Pittsburgh 19, Pa. District offices: Boston, Chicago, New York, Los Angeles, Pittsburgh and Woodward, Ala. In Canada: Koppers Products, Ltd., Toronto.

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OR WRITE FOR COPY

KOPPERS

**KOPPERS**
**BITUMASTIC**
**COATINGS AND ENAMELS**
*another fine product of COAL TAR*

KOPPERS COMPANY, INC.
Tar Products Division
Dept. 103J
Pittsburgh 19, Pa.

Gentlemen:

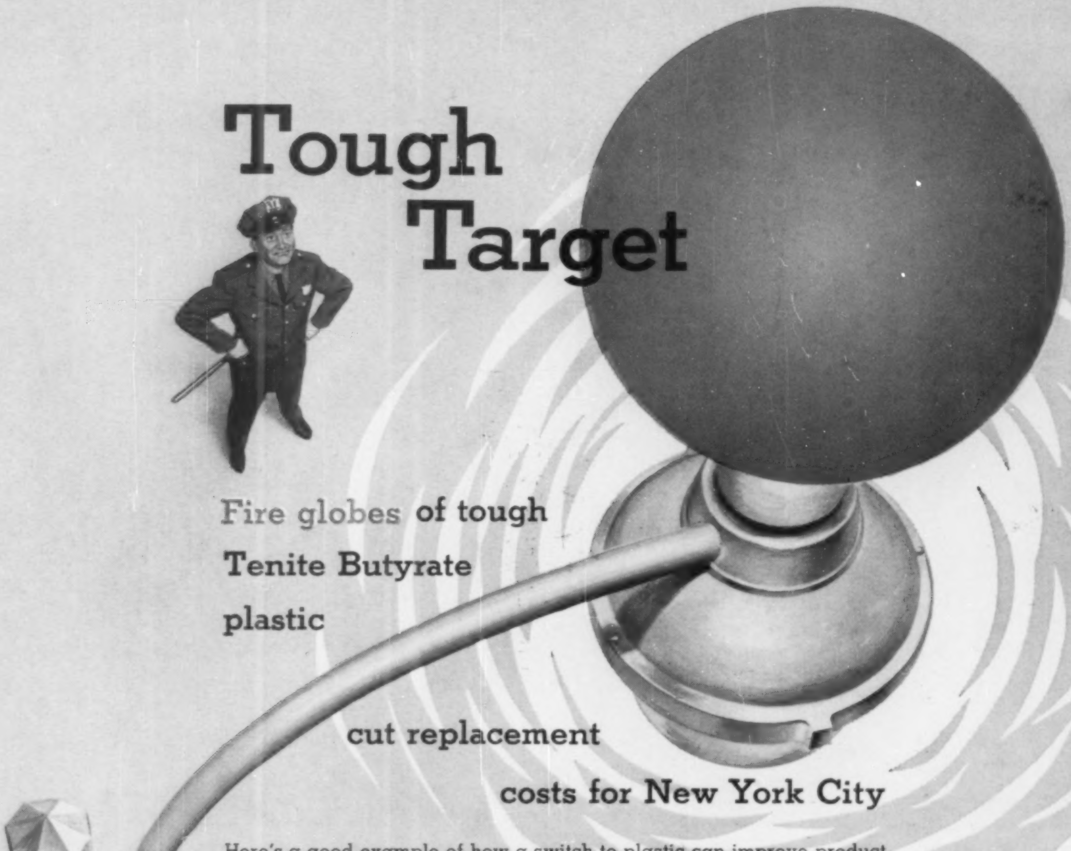
Please send me your booklet T93 on sewage plant protection with Bitumastic Coatings.

Name________________________________________

Firm____________________________Title__________

Address______________________________________

City_____________________Zone____State__________



# Tough Target

## Fire globes of tough Tenite Butyrate plastic cut replacement costs for New York City

Here's a good example of how a switch to plastic can improve product performance.

In New York City, orange-colored light globes mounted on nearby poles are used to call attention to the location of fire alarm boxes. However, over the years, vandal breakage of the glass globes had become a growing problem. Four years ago, two of the boroughs found an answer—they switched to globes of Tenite Butyrate plastic. Since then, each broken globe has been replaced with one made of Butyrate. Result: the replacement rate has been cut by as much as 60%. And even this improvement will be bettered in another year when the whole system will have been converted to Butyrate globes.

As in so many other applications, Tenite Butyrate supplied a superior combination of the properties needed...high resistance to impact, weather durability, good moldability and excellent light transmission. Of importance, too, the Tenite Color Laboratory developed a color formulation that duplicated the orange hue of the original glass globes.

Perhaps your company has an outdoor material problem that could be solved by a switch to Tenite Butyrate.

Why not investigate this tough, durable plastic? For information, write EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENN.

**TENITE®**
**BUTYRATE**
*an Eastman plastic*

Fire globes molded of Tenite Butyrate by A. L. Hyde Co., Grenloch, N. J., for The Welsbach Corporation, Philadelphia 2, Pa., which does street lighting maintenance for the City of New York. Commenting on the considerable reduction in replacements since switching to Butyrate, Welsbach's New York City manager says, *"Butyrate's resistance to shock is so great that no replacement is necessary when the globes are pierced by BB shot or even small bullets. They resist damage from small stones, and even large rocks will only tear the Butyrate, leaving the globe in serviceable condition."*

# Voting Machines Need No Introduction

## But as happens at banquets, the introduction follows anyway—and here's to voting machines!

***They're secret, accurate, fast.***

Come November in cities and towns all over the land, some 65 million Americans will cast a ballot for a new President. Nearly half of these voters—close to 30 million—will vote by machine, the rest by hand-marked paper ballots. Ten years ago, only about one-third of U. S. voters used machines.

What is the story behind this trend?

Since the machines automatically register the vote as it is cast, there are no ballots to be counted. This cuts in half the cost of election officials' time, and reduces printing costs and the number of precincts and officials needed.

Perhaps the most important advantage of the voting machine in a democracy is that it *makes every vote count.* On a ballot, if a voter makes a mistake, like voting for six councilmen instead of five, his ballot is simply thrown out—and he never knows it. On a machine that kind of error can't happen. The machine "locks" after voting for the five councilmen—and a voter can even change his mind and "erase" before he leaves the booth. The machine also prevents fraudulent destruction of a ballot by counters who "accidentally" put a mark on it so that it will be voided—an old trick.

### Evolution

Ancient methods of voting were by the clash of spears on shields, by vocal clamor, by acclamation, by placing a pebble or little ball in an urn—hence the word "ballot" from the Italian "ballotta," meaning little ball.

In 139 B.C. the first written ballot was used in Rome. Yet it was not until 1872 that secret voting for public officials was adopted in England. The Australian Ballot was introduced in this country in 1888. In the search for a simple method of voting and vote counting by machine, Thomas A. Edison was a pioneer. His ideas paved the way for the voting machines of today.

The first machine actually used in an election (in Lockport, New York, in 1892) was the invention of Jacob H. Myers. It was a massive device, and four years later, the United States Voting Machine Co. of Jamestown, N. Y., marketed an improved device which soon secured widespread use throughout New York State. This company became the Automatic Registering Corp. in 1914, and in 1925 the name was changed to the more accurate title of Automatic Voting Machine Corp. In 1958 AVM was acquired by, and became a division of, Rockwell Manufacturing Co. of Pittsburgh.

Of the 50 states, there are only six in which no voting machines are used, Alaska, Arkansas, Idaho, Nebraska, Utah and Wyoming.

At the other end of the spectrum are six "all-the-way" states where voting machines are mandatory at every polling place. These are Connecticut, Delaware, Louisiana, Maryland, Rhode Island, and New York.

Most of the nation's largest cities—New York, Chicago, Philadelphia, Detroit—are equipped with voting machines. They are also used extensively in rural areas of Iowa, Montana, North Dakota, South Dakota, Wisconsin, Minnesota, Michigan and Kentucky. There is now a total of 102,600 voting machines in operation throughout the U. S.

Although the manufacturers' rule of thumb of one machine for every 400 to 500 registered voters is pretty generally adhered to when this is practical, there are many cases where it may not be. The number of registered voters per machine is determined by the length of the voting hours and the size of the ballot. In Indiana, where up to 40 offices are voted on, one machine is provided for every 300 voters. In New York, Connecticut and Virginia, where the ballots are shorter, one machine is provided for approximately every 700 registered voters. Only in Louisiana, Delaware and Rhode Island are they purchased at the State level. Michigan, Minnesota, Wisconsin, New York and the New England states, except Rhode Island, leave the purchase of machines up to the individual city, town, or village. In many instances voting machines are purchased by counties.

The only sources of supply are Rockwell Manufacturing Co.'s Automatic Voting Machine Division, which pioneered the voting machine, and the Shoup Voting Machine Co., New York City, which entered the field in 1930. The major differences between these two voting machines

*(Continued on page 173)*

Since 1880
AH

EXTRA REVENUE
FOR YOUR PARK WITH
ALLAN HERSCHELL TRACKLESS TRAIN

FIVE OF THESE TRAINS IN
OPERATION IN ONE LOCATION,
NIAGARA FALLS STATE PARK

**ALLAN HERSCHELL**
NORTH TONAWANDA, NEW YORK

Transit experts with 90 years of experience in mass transportation have engineered the Allan Herschell Trackless Train to be the best. Locomotive and car bodies are designed and built to produce maximum safety, comfort and economy of operation. Power unit employs a Ford tractor with exclusive SELECT-O-MATIC transmission. Will pull steep grades and turn in 20′ radius. Each car holds 16 adults or 24 children . . . The Allan Herschell Trackless Train is a revenue producer for you and a convenience for your patrons.

*ALSO AVAILABLE . . . G-16 DIESEL AND "1865" STEAM TYPE TRACKED TRAINS*

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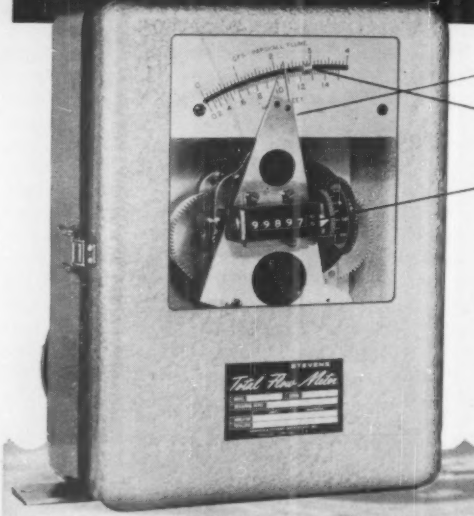
STEVENS
TOTAL FLOW METER
Model 60M



**Low-cost meter provides essential flow data for operation of sewage treatment plants**

- **INDICATES FLOW**—Rate of flow and head are indicated by pointer and scale.
- **INDICATES PEAK FLOW**—Sliding red index on scale indicates peak flow.
- **TOTALIZES VOLUME**—Counter totalizer registers total flow.

Mechanically operated meter provides essential data in measurement of sewage, industrial wastes, irrigation water or other liquids flowing in open channels. Standard meter gives direct flow reading in cu. ft./sec. and totalizes volume in cu. ft. Readings are easily converted to other units of measurement.

The instrument is designed for use with Parshall flumes and various weirs. It is entirely mechanically operated, will function without attention for eight-day intervals, and is easy to install on table, shelf or wall. If a graphic record is desired, the meter can be used with a Stevens Type F Recorder. Write for Stevens Hydrologic Instrument Short Form Catalog No. 23, and for Bulletin 28 which describes the Model 60M meter in detail.

**HYDROGRAPHIC DATA BOOK**—Valuable reference file. 124 pages of technical data on recorder installations, plus a wealth of hydraulic tables and conversion tables. $1 copy. (No C.O.D.'s)

L&S INSTRUMENTS
LEUPOLD & STEVENS
INSTRUMENTS, INC.
4445 N. E. Glisan Street, Portland 13, Oregon
*Specialists in hydrologic instruments for over half a century*

*(Continued from page 171)*

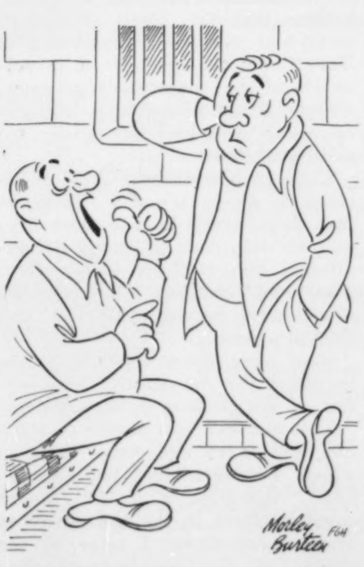
are in the method of ballot presentation and the location of the counting mechanism. The basic interlocking device is the same in both machines.

How these machines are bought by a city is exemplified by the way Automatic Voting Machine operates. It manufactures four standard sizes ranging from the largest, as used in Indiana, West Virginia, and Illinois, to the smallest, as used in New York, Virginia, and Connecticut. The size of machine required is wholly dependent on the size of the ballot submitted to the electorate.

Cost of machines ranges from $1,531 to $1,857. They may be bought in a number of different ways. Automatic Voting Machine, for example, offers three plans other than cash payment: (1) a deferred payment plan with equal payments over a period of up to ten years; (2) a negotiable securities plan with equal annual installments in the form of interest-bearing bonds, certificates of indebtedness, promissory notes, or other negotiable paper; and (3) an installment plan, under which the community pays annual installments over a period of ten years and retains the option of returning the machines at the end of one year.

A voting machine is actually an intricate interlocking device equipped with three-digit adding machines for each candidate and for the "Yes" and "No" for each question, amendment, or referendum—and equipped with various locking devices to prevent fraudulent manipulation and to insure that voters and election officials comply fully with local election laws and regulations. The voter, in casting a ballot, simply moves an operating handle to close the curtain, and indicates his choice by turning a small voting lever over the name of the candidate for whom he wishes to vote—this exposing the familiar "X" mark. The voter moves the operating lever back to its original position and by so doing registers his vote, returns the voting levers to their unvoted position and opens the curtain.

To date the voting machine has remained a strictly American institution because mass voting at regularly scheduled intervals, during the period of a year, takes place only in America. In some other democratic nations, however, voting machines could make a contribution only slightly less important than they make in the U. S. Sales work to this end is being carried on. ◄◄



***"I'm probably the best advertisement voting machines ever had. I voted 114 times in the last mayoral election."***

—Alabama Municipal Journal

LAWSON
Wall Hung Waste Receptacle

Up Off the Floor
Empties Easily

This new LAWSON Torpedo-Style Waste Receptacle No. 6006 is a great space and work saver. Receptacle detaches easily for emptying, then snaps back into place. No bags, no muss. Fastens securely to wall with just three screws. Up off the floor, collects no mop stains. White baked enamel finish, stainless steel trim. Capacity 12½ gal., 6-inch top opening.

*Warehouses in Principal Cities*

THE F. H. LAWSON CO.
EST. 1816 • CINCINNATI 4, OHIO
Steel

LAWSON PRODUCTS ARE NATIONALLY ADVERTISED

REACH IT
Quickly, Easily, Safely
with A
crows'nest
The High-Performance
AERIAL LADDER

Famous CROWS'NEST Extension Ladders are world-renowned for their versatility, safety, dependability and ruggedness.

CROWS'NEST features are both numerous and important. They include the following:

- Safe, firm, sure-footed collapsible platform which drops into place when ladder is extended, folds when retracted.
- Elevations to 80' — inclinations to 72° — full rotational sweep of 360°.
- Semi-automatic operation permits complete manual control at all times.
- No side-sway — no weave — no sag. Crow'snest ladders are strongly reinforced with steel trussing and rung ferrule braces. Structural steel gives ladder mount superior strength.
- Crows'nest pedestal-base ladders are available in standard lengths of 29', 32'9" and 36'8" for auto truck mounting . . . and up to 80' with portable base for special and in-plant use.

Write now for illustrated literature or submit specifications for proposal. Address Dept. J.

ISC INDUSTRIAL SYSTEMS COMPANY
MATAWAN, NEW JERSEY

# Evanston's Fire-Police Cooperation

By **BERT W. JOHNSON**
City Manager

When the 1957 budget was being formulated, the City of Evanston, Ill. (population 75,000), was faced with the need to reduce the firemen's and policemen's work week by 17%. This reduction would have made it necessary to recruit as many as 30 policemen and firemen. It was decided to hire only 14 new policemen and no new firemen and to institute a police-fire cooperative program under which the newly recruited policemen would assist firemen in fighting fires. Then, in early 1958, over 100 policemen were given training in fire-fighting and became eligible for $30-a-month pay allowance on the successful completion of the course.

At present 50 policemen are patrolling the three districts in the city in police station wagons equipped with fire extinguishers and other fire-fighting equipment. Twelve of these men, six in station wagons and six in patrol cars or three-wheel motorcycles, are on duty at a time, and a minimum of two police station wagons respond to each fire alarm immediately. Some other divisions, under a recently established operating procedure, proceed to fires in accordance with a response pattern related to the seriousness of the fire and assist the fire companies if and as needed.

To explain the program and answer the usual questions we prepared a list of questions and answers. Some of these are given in brief below.

*Has the city's experience to date produced instances where cooperative policemen arrived at a fire and accomplished important results before the first fire apparatus arrived?*

Police cars frequently will be nearer a fire when an alarm is received than the nearest fire station, and as they are in motion, can often reach the scene sooner than fire apparatus. There have been a number of instances where police cars arrived at fires first and performed duties of undeniable value before fire companies arrived.

*How about the expectation that this program would increase job satisfactions?*

From my frequent discussions with Police Chief Hubert G. Kelsh and other police officers, there is no question but that our police officers are challenged by their fire-fighting responsibilities. Morale in the department is at an all-time high. Our firemen understandably still seriously question the value of the program but I believe that acceptance of it has increased somewhat since the Fire Department is giving the program a fair trial.

*What are the current figures on the annual savings attributable to this program?*

Adding 16 firemen at $5,376 plus pension and other fringe benefits would cost $114,400 at current rates. Additional annual costs of the program are $36,720 for the $30 monthly allowance granted to cooperating policemen, a nominal amount for additional equipment, and potential additional pension costs of $12,000 if all the policemen in the program are receiving the CPO pay at the time of their retirement. Hence, the program is currently saving us $65,000 per year.

*Instead of spending money for the Cooperative Police Officer's $30 allowance, why not spend the same money to hire additional firemen?*

For the money the program now costs, depending somewhat on your assumptions, we could hire six or seven additional firemen. We do not believe that this small amount of additional manpower in the Fire Department can begin to be as valuable as the cooperative program.

*How about abandoning the cooperative program and hiring ten additional firemen?*

Hiring ten additional firemen instead of six or seven would mean that there would be one more fireman on duty each shift, and the additional cost of three or four firemen would increase our budget by somewhere between $20,000 and $30,000 a year.

*How many firemen would it take to equal the fire-fighting capabilities of cooperating police officers?*

This question is a matter of opinion, and there are some ways in which a conventional fire department, regardless of its size, never could perform in the same way as our present force. I refer to the ability of our cooperating police officers to reach the scene of a fire rapidly and to the large trained

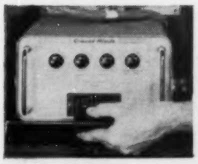
*(Continued on page 176)*

# NOW...

*the world's most advanced vehicle-actuated*

# ELECTRONIC TRAFFIC CONTROLLERS

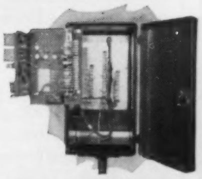
**CROUSE/HINDS** Vehicle-Actuated Electronic Traffic Controllers are designed to provide the choice of basic controller and accessories that will give you the most efficient command of any specific intersection. There is a choice of 3 basic controllers to meet the needs of any intersection, with provision for future modifications built in.



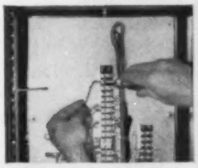
**ONE OR MORE PLUG-IN ACCESSORIES** expand functions of basic controller, without change in main timer, or addition of relays. Front of each unit has disconnect plug for easy removal.

**COMPLETE RANGE OF TIE-IN** and Modifying Accessories provides all operations called for by engineers coping with today's traffic complexities. (All are compatible with existing systems.)

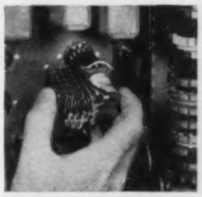
**CAMSHAFT CONSTRUCTION** reduces number of relays to *minimum* . . . permits a wider range of modifications before resorting to special accessories . . . without changes in timer or wiring.



**"OPEN BOOK" CONSTRUCTION** of Crouse-Hinds Controllers gives ready accessibility for all maintenance, installation and adjustment procedures.



**ONE BASIC TIMER** with one standard set of wiring handles all jobs. All modifications not made by simple cam adjustment are obtained by plug-in accessories without complicated rewiring.



**JACK-MOUNTED RELAYS** eliminates wiring for replacement. Just pull relay from jack and slip in new relay. Fewer number of relays reduces maintenance headaches to a mere fraction.

**COMPLETE TECHNICAL INFORMATION** on the Crouse-Hinds series of Vehicle-Actuated Electronic Traffic Controllers is yours at the drop of a postcard. Literature by return mail.

**CROUSE/HINDS**
SYRACUSE NEW YORK

**OFFICES:** Atlanta Baton Rouge Birmingham Boston Buffalo Charlotte Chicago Cincinnati Cleveland Corpus Christi Dallas Denver Detroit Houston Indianapolis Kansas City Los Angeles Milwaukee New Orleans New York Omaha Philadelphia Pittsburgh Portland, Ore. St. Louis St. Paul Salt Lake City San Francisco Seattle Tulsa Washington
**RESIDENT REPRESENTATIVES:** Albany Baltimore Reading, Pa. Richmond, Va.
Crouse-Hinds of Canada, Ltd., Toronto, Ont. Domex, Mexico City, D.F. Peterco, Sao Paulo, Brazil

*(Continued from page 174)*

pool of manpower (200 men) now existent in our two departments taken together. The National Board of Fire Underwriters, although not committing themselves on the Evanston program, reportedly considers auxiliary fire-fighters as equal to one-fourth of a full-time fireman. I consider our program to be much more valuable than this.

*How has the newly installed police-fire communications center facilitated the operations of these two departments and of the cooperative program?*

Most important, it has released the equivalent of three firemen from the unpopular duty of tending the fire board, and these men are now assigned to fire companies.

*Is the program producing maximum potential benefits?*

No, we readily admit that there are some rough spots, that acceptance of the program is not complete, and that our cooperating police officers can learn a great deal more about fire-fighting. There are not many opportunities for cities to improve service and to save substantial amounts of money; this program is good and we should make every effort to benefit from it.

During the five month period ending May 31, 1960, Fire Marshal James J. Geishecker reports there were 183 calls where cooperative help might be needed. In 45 cases, cooperative police officers arrived before the first fire apparatus; in 68 cases they arrived at approximately the same time; in 44 cases they arrived within two minutes; in 24 cases they arrived after two minutes of the arrival of fire apparatus but in close proximity; in only two cases where cooperative police officers were supposed to arrive and which were false alarms, they did not arrive before the Fire Department's departure from the scene. The size of the response averaged approximately four men with three or more cooperative police officers responding to 154 of the 183 alarms. The number reporting to alarms usually depends on the type of alarm received. Cooperative police officers do not respond to calls classified as details or to calls where it is definitely determined that their services will not be needed. ◄◄

## Growing Interest in Small Cars

With the loss of the factory discounts on cars and small trucks previously allowed them, state and local governments have definitely shown a growing interest in small cars. Sales and public acceptance of smaller cars, both foreign and American models, have brought the larger manufacturers into the small car field. These include Chevrolet with Corvair, Ford with Falcon, Plymouth with Valiant, Studebaker-Packard with Lark, American Motors with Rambler American.

Out of 28 cities replying to an inquiry sent them by the International City Managers' Association, 15 said they are using small cars. The principal advantages are ease of driving, parking and housing; lower initial and operational cost. A few of the findings of this survey are given below.

Among the foreign cars Volkswagen is most popular. Richmond, Va., has used Volkswagens since 1956, purchased eight more in 1957, and 13 more in 1958, and now operates twenty. First-cost saving was $325 per car in 1958; operation per mile of the 20 cars ranged from 1.1. to 5.4 cents.

Nine cities reported the use of the Studebaker Lark and Hackensack, N. J., uses them on police patrol duty.

Seven cities are using the Rambler American. Dallas uses 20 in the building inspection, water service and tax divisions, for economy reasons. Austin, Tex., has 11 and Miami 16. ◄◄

## Homestead Acts to Keep City Power Plant

Homestead, Fla., doesn't intend to lose its million-dollar municipal electric and water works. A recent city ordinance requires a vote of 75% of the registered property owners to approve the sale of either utility. The previous charter provision required only that a sale be approved by a 50% plus one.

Homestead's Council President Joseph Burton pointed out that the utilities contributed $225,000 toward the city's operating budget during the last fiscal year. The city has owned its power utility since 1917. Private utility interests have tried to purchase it several times without success. ◄◄

**MINIATURE 2-WAY RADIO SYSTEM Keeps YOU in CONTACT in ANY Situation; ANY TIME, ANYWHERE!**

**the SEISCOR TELEPATH**

. . . is a portable industrial quality communications system that becomes a part of your wearing apparel. It is engineered for short-range applications where dependability and convenience of use are essential. Precision circuit and durable construction provide extremely low maintenance and trouble-free operation!

- **Fully transistorized printed circuit**
- **Crystal-controlled superheterodyne receiver**
- **Crystal-controlled transmitter**
- **Long battery life**
- **For any single frequency between 20-55 mc., A.M.**
- **No license required on 27 mc. units.**

**MODEL HR**
Hardhat with built-in transceiver, antenna, earphones and mike. High and low noise level models available.

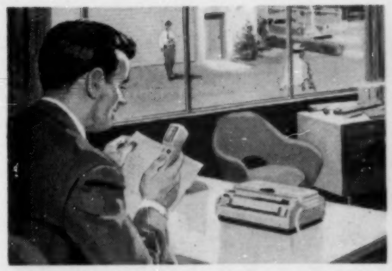
**MODEL BR**
Belt-clip transceiver and headset with built-in antenna, earphones and mike. High and low noise level models available.

**Let Seiscor Engineers analyze your short-range communications problems. Example: Special units have been designed into protective clothing for crash-crew fire fighters.**

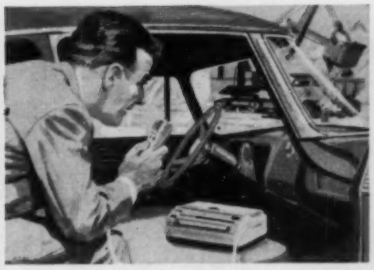
**FIND OUT TODAY HOW TELEPATH CAN IMPROVE YOUR SHORT RANGE COMMUNICATIONS!**

Write for name of nearest TELEPATH dealer, and complete information on versatile TELEPATH communications.

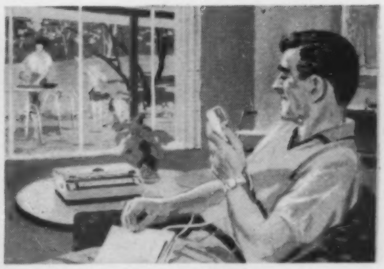
SEISCOR
A DIVISION OF SEISMOGRAPH SERVICE CORPORATION
BOX 1590, TULSA, OKLAHOMA



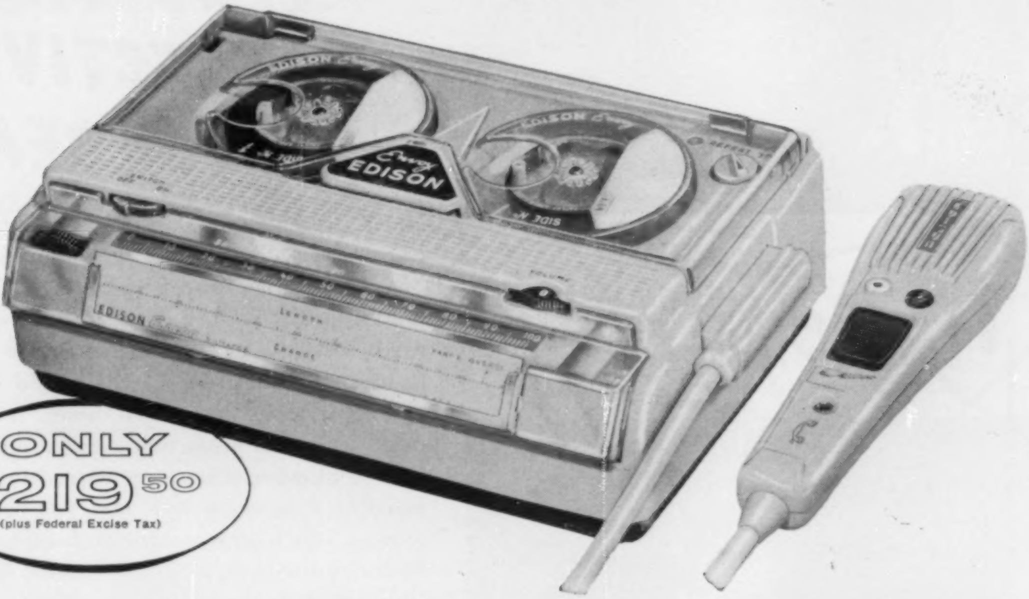
**At the office**—New Envoy's simple mike controls make dictation—and interview or 'phone conversation recording—a snap



**On the road**—Envoy is a verbal note pad—to capture facts and observations on the spot. Operates from car battery using low-cost adapter



**At home**—Envoy lets you keep ahead of correspondence, reports . . . practice speeches and presentations . . . capture ideas as they come



ONLY
$219.50
(plus Federal Excise Tax)

# See the Edison ENVOY

## A new budget-priced tape dictating machine

THINKING of getting a dictating machine? Here's one you've got to see—the *new* Edison Envoy! Makes magnetic tape dictation easier than you'd ever have thought possible—*and at a budget price!*

The Envoy is designed by Edison Voicewriter, and is backed by Edison's national service organization. Here are some of the Envoy's quality features for ease of dictation:

- Envoy records on magnetic tape; has tape's characteristic sound quality, long "play" time.
- Has dictating controls on mike—where they belong.
- Is all-transistorized for dependable day-in, day-out *hard* business use.
- Has precision indexing—shows where you are, where you want to *be*—without guesswork.
- Features simple control for dictation or interview recording. Optional accessories make it a telephone recorder or secretarial transcriber.

**Edison Voicewriter**

A product of Thomas A. Edison Industries,
McGraw-Edison Company, West Orange, N. J.
*In Canada:* 32 Front St. W., Toronto, Ontario

McGRAW EDISON

*See new ENVOY in action... Mail coupon today...* or contact your nearby Edison Voicewriter office (see *"yellow pages"* under Dictating machines)

To: Edison Voicewriter
Dictation Center, U.S.A.
West Orange, New Jersey

new
EDISON Envoy

☐ I'd like a 10-minute look at the new Edison Envoy.

☐ Send me illustrated folder.
I understand there's no obligation.

Name______________________________

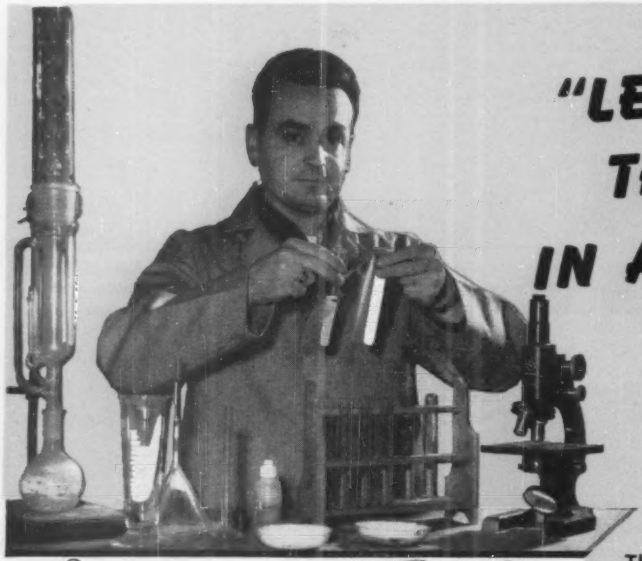
Position____________________________

Organization________________________

Street______________________________

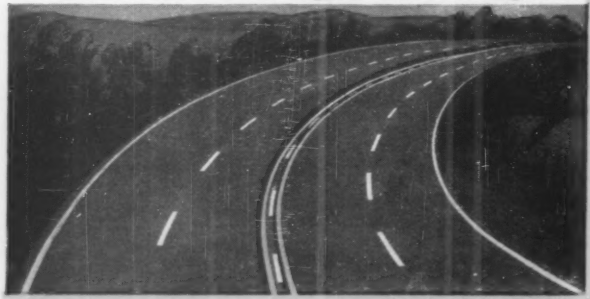
City______________Zone____State____

AC-9



# "LET ME SHOW YOU THE DIFFERENCE IN A TRULY WHITE, LEAD-FREE REFLECTIVE BEAD"

66
SPEED
LIMIT
50
SLOW



There is a marked difference in reflective bead quality, determined largely by degree of whiteness and lead-free quality. On these two important factors depends the brilliance, reflectivity and ultimate performance of the product. To meet Flex-O-Lite's rigid quality standards, only the *whitest white, lead-free* beads can pass inspection. Add to this, technological advances, long experience and manufacturing know-how and you have the reasons why highway signs and markers, reflectorized with Flex-O-Lite beads, literally leap out of the darkness to contribute greater safety for the motoring public . . . greater satisfaction and economy for you. Write for new brochure today.

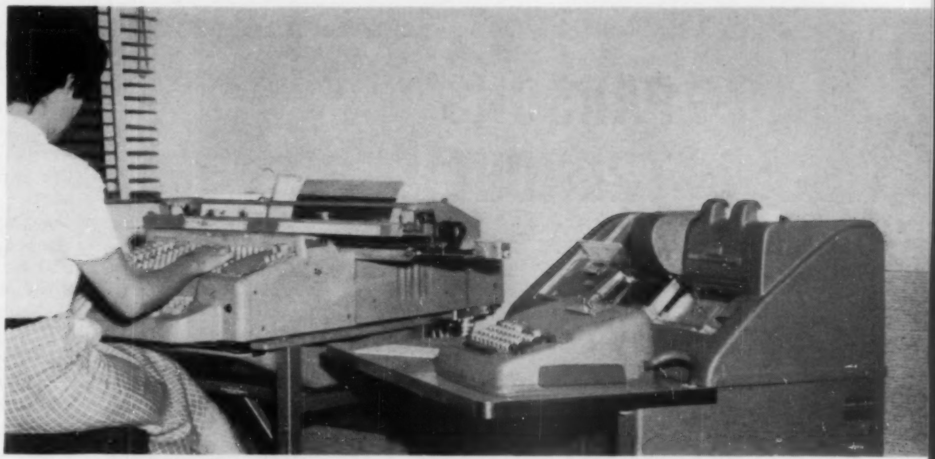
## FLEX-O-LITE PRODUCTS

1. **No. 831 LEAD-FREE** High Index of Refraction Beads and Sign Kits. Best for white and yellow signs.
2. **UB 68 LEAD-FREE** Medium Index of Refraction Beads and Sign Kits. For application to signs in the darker pigment colors—greens, reds, blues, etc.
3. **TYPE H SAFETY SPHERES**—For danger points such as guard rails, curbs, bridge abutments, medians, hydrants and other hazardous areas where ultra-high brilliance is required. Many times brighter than paint or ordinary reflectorization.
4. **TRAFFIC BEADS**—Free Flowing, Moisture-Proof and Standard Beads. Tops in eye-catching brilliance and dependable reflectorization on highway center lines and edge line markings.
5. **ALL-WEATHER AIRPORT RUNWAY BEADS**—500 to 1,000% brighter than standard beads at angles of descent ranging from 10 to 30%.
6. **FLEX-O-LITE ALSO MAKES:** New Positive Free-Flowing Traffic and Sign Bead Dispensers. The economical answer to the problem of reflective glass bead application. Details on request.

FLEX O LITE
TRADE MARK REG. U.S. PAT. OFF.

**FLEX-O-LITE MANUFACTURING CORP.**

8301 Flex-O-Lite Drive, St. Louis 23, Missouri • Flex-O-Lite of Canada, Ltd., P. O. Box 216, St. Thomas, Ontario, Canada • Paris, Texas
MAKERS OF DROP-ON, FREE-FLOWING, STANDARD, MILITARY, MOISTURE-PROOF, HIGH AND MEDIUM INDEX SIGN BEADS



*The National Cash Register Model 3100 accounting machine is on the left; the IBM 026 printing card punch is on the right.*

# Data Processing by a Community of 10,000

By **J. A. JUNGHERR***
Assistant to the
City Manager

The installation of integrated data processing equipment combined with contracted tabulating services may result in savings by communities in the 10,000-to-25,000-population range.

An integrated data-processing system for general accounting and water billing for the City of Lake Forest, Ill. (population 10,658) is presently being installed.

Our National Cash Register Model 3100 accounting machine which we purchased two years ago was joined with an NCR card punch intercoupler to an IBM card punch. This equipment will simultaneously create punched cards as an automatic by-product of posting "hard-copy" records. IBM punched cards are then sent to ASC Tabulating Corporation for processing. No original accounting documents leave our office. Only punched IBM cards leave our office.

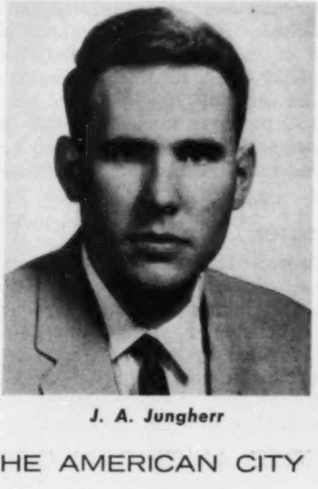
Our auditor, Joseph F. Guerin, Paul Pettengill & Co., Waukegan, Ill., joined in recommending the new system. G. Leland Watson, director of public works and Harry R. Von Huben, superintendent of water, concurred in the water billing system. Frank P. Potesta, sales representative, National Cash Register Co., Paul Svendsen, general manager, accounting systems division, ASC Tabulating Corp., Lake Bluff, Ill., and Art Lewis, sales representative, International Business Machines Corp., Evanston, Illinois, assisted in the design and installation of the new IDP system.

As a result of reduced personnel, about $2,600 will be saved during the first year and $3,800 during the second year, exclusive of the initial cost of $4,110. No employees will be dismissed because of this new IDP system. Reduction of the number of employees will be achieved by not hiring for positions that become vacant because of normal turnover.

## Description

- General ledger is eliminated.
- Cash Receipts—daily cash receipts register provides information for punching cards.
- Cash Disbursements — check and check register continue to be prepared in one writing operation on the accounting machine as at present; cards are punched as a by-product.
- Payroll check, payroll register and individual earnings record continue to be prepared in one writing operation on the accounting machine as at present; payroll recap punched into cards.

*(Continued on page 180)*



*J. A. Jungherr*

**Costs**

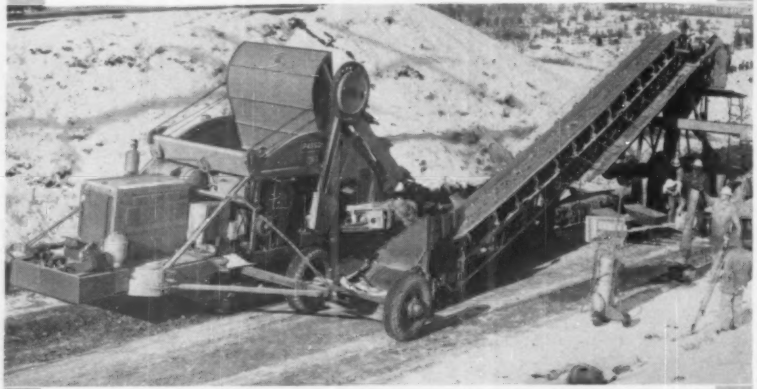
| | Initial | Annual Operating |
|---|---|---|
| **NCR card punch intercoupler** | $3,310 | $ 280 |
| **Lease of IBM card punch** | — | 850 |
| **ASC Tabulating Corp., Lake Bluff, Ill.** | 800 | 3,300 |
| **Total** | $4,110 | $4,430 |

---

* Mr. Jungherr was appointed Assistant to the City Manager for Lake Forest, Ill., May 1, 1960. On June 1, 1960, the City Council elected him City Clerk as an additional duty. Prior to that he served two years with the City of Lake Forest as Administrative Assistant. He is a graduate of the University of Connecticut and holds a master's degree in public administration from Syracuse University.

PARSONS®
TRENCHLINERS

*main cog in new sewer laying technique*



**Parsons® 310 Trenchliner® with special 70' long conveyor, developed by Morrison-Knudsen engineers, for portion of large Boise, Idaho sewer contract.**

Two model 310 Trenchliners are being used by Morrison-Knudsen Company, Boise, Idaho, to lay sewer in a new and unique way that keeps closed streets and blocked driveways to the barest minimum.

Pipe is laid as ditch is dug and backfilled immediately. The 310 tows a special conveyor, developed by M-K engineers, that conveys spoil back into the trench on top of the newly laid pipe. A shaker screen separates fine material from coarse and puts fines down first. A shield protects the crew from cave-ins as they work behind the Trenchliner. M-K has been able to lay up to 525 feet per day.

Some reasons the 310 Trenchliner is so popular for sewer line and water main work: Digs up to 19 feet deep, from 24" to 72" wide — and 30 digging feeds from 5'11" to 8'4" per minute give you utmost efficiency under all working conditions. See your Parsons distributor soon, or write for bulletin KP552.

**Here's the kind of ground the 310 has to cope with on the Boise sewer project.**

PARSONS COMPANY
Newton, Iowa

*A Division of*
KOEHRING
*Company*
P17

*(Continued from page 179)*

- Adjusting journal entries — cards punched from source documents.
- Accounts receivable, invoices payable—IBM cards punched from source document. This information will provide up-to-date monthly reports.
- Copies of the following reports are prepared monthly by ASC Tabulating Corp. and are available three working days after the end of the month:

Detail ledger by fund, account and department showing
  Open balances
  Current month transactions
  Current month ledger balances
Balance sheet by fund showing
  Current month transactions
  Current month ledger balances
Statement of revenue and expenditures (revenues are by fund; expenditures are by fund, department and activity) showing
  Current month totals
  "Year to date" totals
  Memoranda of commitments (dollars only)
  Budget amount (dollars only)
  Available amount (dollars only)
Vehicle reports showing
  Current month detail
  Current month totals.

### Water Billing

The city provides ASC Tabulating Corporation punched cards indicating the folio number, reading date, prior reading, present reading and consumption.

ASC prepares postcard water bills, water bill register (by area and water rate), list of customers by folio number and an IBM card for each customer billed (showing customer's name, folio number and amount of bill).

Each month we give ASC the master customer file of cards along with the current month's billing.

As bills are paid the city pulls applicable IBM card, gang punches date of cash receipt and forwards the IBM cards to ASC at the end of the month.

ASC prepares reports of cash received with no open bills, cash received that had bills and delinquent bills.

### Master Cards

Master IBM cards containing name, address, folio number, area, rate and minimum charge for each water customer will be prepared and verified by ASC. The city will keep this file current.

We feel that the potential for our new IDP system is unlimited. The following areas are being explored:

- Police accident statistics.
- Police court traffic fines.
- Inventory.
- Special assessment accounting. ◄◄

## Transit Cars and Automobiles

Three new high speed rapid transit cars, designed to operate on rails integrated with automobile expressways of metropolitan transportation systems, are being service-tested by the Chicago Transit Authority (CTA) for use in the Congress Expressway Subway. Speed runs of the new equipment, manufactured by the St. Louis Car Co., show them capable of accelerating from zero to 72 mph in 120 seconds.

Equipped with 100-hp General Electric and Westinghouse Electric motors, the cars will theoretically maintain a rate of acceleration of three mph per second up to 30 mph and then continue to accelerate at a lower rate until a maximum speed of 75 mph is reached. The maximum speed of the CTA's earlier high performance rapid transit units is 45 to 50 mph.

"Their purpose is not maximum speeds over extended runs," said CTA's General Manager, Walter J. McCarter, "rather, we are interested in the development of rapidly accelerating units for operation on rails integrated with automobile expressways where station stops are properly spaced for high-speed service." ◄◄

## First Year for Salaried Magistrate

The City Magistrate in Rock Island, Ill., has just completed the first year on a salary basis. It was felt that fairer justice was more likely when the presiding judge was not concerned with fees.

The magistrate is paid $6,000 a year and holds court twice daily Monday through Saturday. During the past year Judge Cunningham has heard 5,245 cases. He imposes stiff fines for traffic violations and crimes, then suspends most of the fine providing no further violations occur in a stated period. If arrested again, the amount of the fine is collected along with a heavier fine for the new offense. This policy has decreased revenues but it has cut down the number of offenses.

ROBERT HEITSCH, *City Manager*
*Rock Island, Illinois*

New SHAWNEE
HYDRO-CLAM

SHAWNEE 88C
PARSONS SHAWNEE

MODEL
88C

Speeds Spot Excavation, Carves Smooth, Clean Holes

Here's a low-cost way to speed spot excavation work, open bell holes or dig under sidewalks — new Shawnee 88-C Hydro-Clam. It mounts easily on most tractors . . . can dig to 12′ depths quickly in congested areas or cramped quarters. Clam bowls operate independently or together for producing level floor and smooth, clean sides. "Hydaway" hydraulic design protects cylinders, pistons, and hoses — makes Hydro-Clam a low maintenance unit. Ask your Shawnee Utility Tractor Dealer for details.

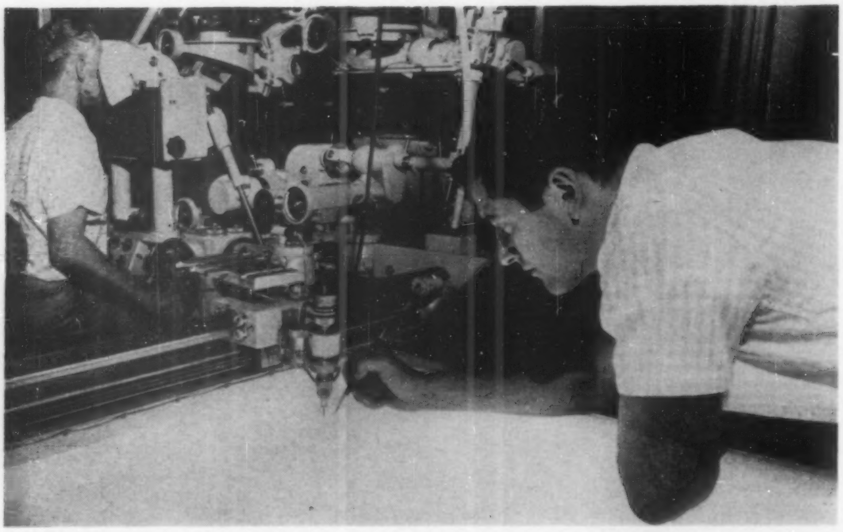
New 88-C Hydro-Clam Condensed Specifications

Breakout: 10,000 lbs.
Lift Capacity: 3,000 lbs.
Boom Swing: 180°
Reach from Pivot: 14′7″
Digging Depth: 12′
Dumping Height: 9′9″
Bucket Capacities: 3 to 5 cu. ft.
Bucket Widths: 16″, 18″, 20″, 24″

PARSONS COMPANY
SHAWNEE DEPT.
Newton, Iowa

A Division of KOEHRING Company

SEND NEW ENGINEERING BULLETIN PS751 ON NEW SHAWNEE 88-C HYDRO-CLAM
NAME
DEPT.
STREET
CITY STATE

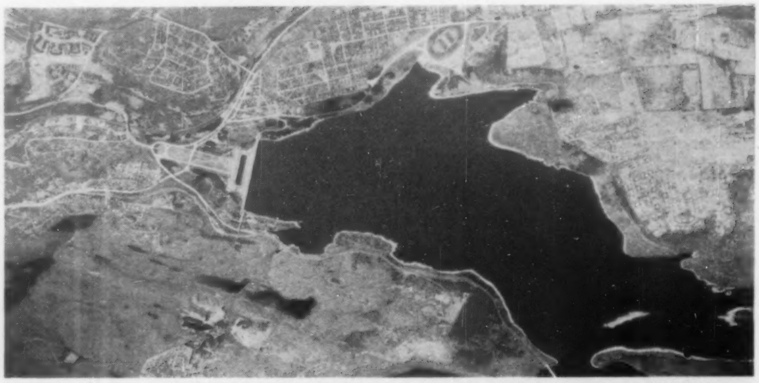


*Using equipment such as this Zeiss Stereoplanigraph, photogrammetric engineers compile topographic maps from aerial photographs.*

# Aerial Survey— Key to Watershed Pollution Study

## The City of New York undertakes a study to determine the best means of preventing pollution of its water supply

By **ARMAND D'ANGELO**
Commissioner
Water Supply, Gas & Electricity
New York, N. Y.



*This aerial view of Kensico Dam shows the close proximity of housing sites to the reservoir.*

New York City has ample water supply to meet its needs until the year 2000 but whether it remains virtually unpolluted is another question. Rapidly growing communities around the Croton and Kensico Watershed areas north of the city pose the threat of pollution from sewage, both industrial and residential. Most of the homes in these areas depend on septic tanks for sewage disposal. They drain into the soil and eventually, by stream, into the reservoirs. Since removing the wastes from the watersheds would cost far less than either filtering or construction of a new water source, the Department of Water Supply, Gas and Electricity is taking this approach to the problem.

Wastes reaching the reservoirs up to this time have been dissipated or neutralized by normal water supply sanitation processes. However, with the continued influx of people and industry in the watershed area, the situation could become critical within the next 20 years. The Department is taking steps now to prevent such a situation from developing.

Aerial photographs of the 400 square miles in question provided much of the data needed for the study. From the photographs, specialists made up topographic and soil analysis maps. These are now in the hands of Department engineers for further study. To obtain the aerial photographs and prepare the maps, the Department awarded a $144,000 contract to Fairchild Aerial Surveys, Inc., a subsidiary of Fairchild Camera and Instrument Corporation.

The topographic maps contain

*(Continued on page 185)*

Model KE-6e

# THEODOLITE

# Optical Transit

by K+E

### Engineered For American Practice

1. **A zero-setting and repetition instrument** . . . horizontal circle graduated in both directions.
2. **Leveling head joint system** . . . linkage prevents angle errors caused by movement between leveling head and foot plate.
3. **Choice of erected or inverted (Model KE-6) image.**
4. **Optical plummet built into alidade** . . . affords a complete check of accuracy when rotated 180°.
5. **Automatic indexing of vertical circle** . . . pendulum system eliminates need for vertical control level and assures accurate vertical angles.
6. **Control knobs all located on one side, easily selected by touch . . .** each clamp and tangent screw on the same coaxial shaft.
7. **Both horizontal and vertical circles seen simultaneously** . . . no need for switching, no mistaking one for the other.

K&E Theodolite Model KE-6e operates in the same fashion and performs the same functions as the standard American transit. Reading direct to 1 min., with estimation to 6 sec., it is ideal for running traverses, laying out curves, land surveys, mining and topographic surveys and all general surveying operations.

Also available: Model KE-1 (inverted), and KE-1e (erected), reading direct to 20 sec., . . . and Model KE-2 (inverted), and KE-2e (erected), reading direct to 1 sec.

Keuffel & Esser Co. Theodolites are designed and built for K&E by world-famous Askania-Werke of Germany. *For further information, contact your K&E Dealer, or fill out and mail the coupon below.*

K+E

**KEUFFEL & ESSER CO.**

NEW YORK • HOBOKEN, N. J. • DETROIT • CHICAGO
MILWAUKEE • ST. LOUIS • DALLAS • DENVER
SAN FRANCISCO • LOS ANGELES • SEATTLE • MONTREAL

**KEUFFEL & ESSER CO. Dept. AC-9, Hoboken, N. J.**

Please send me complete details on the KE-6e and other K&E Theodolite Models.

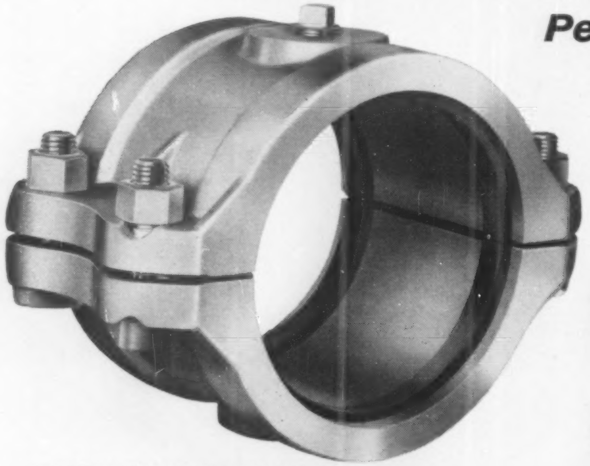
Name & Title ____________________

Company & Address ____________________

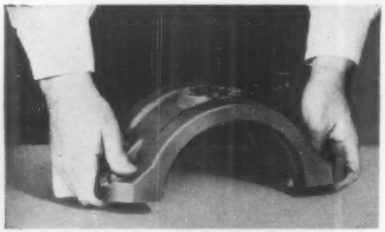
____________________

1537

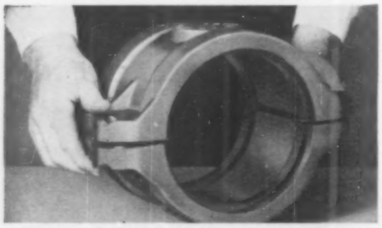
# *NEW* CLOW
## Ductile Iron Split Sleeve



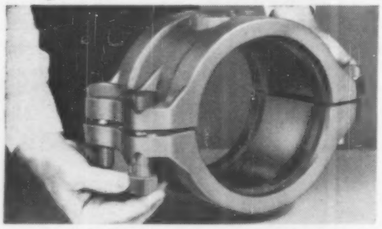
ASSEMBLED IN 3 EASY STEPS



Once the damaged pipe is uncovered, one half of the sleeve is placed on each side of the pipe.



Sleeve halves are drawn together. Pre-assembled rubber gaskets make tight seal.



After the bolts are taken up finger-tight, tightening the four bolts by wrench completes assembly.

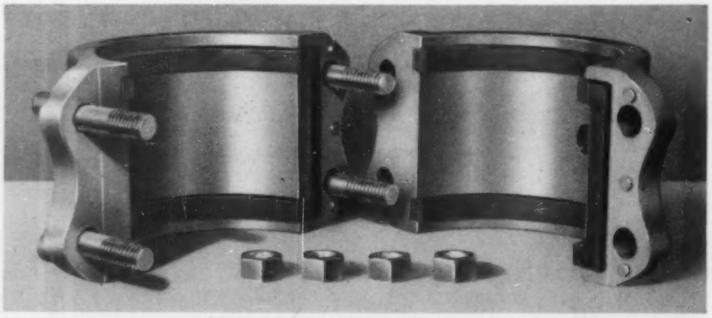
### *Permits easier, quicker, permanent repair of 4", 6" & 8" transverse cast iron pipe underground breaks*

**LIGHT WEIGHT** Assembled 4" diameter sleeve weighs but 26 lbs. Weight of 6" sleeve is 32 lbs., 38 lbs. for 8" sleeve.

**SHORT LENGTH** Effective length of 4 inches between end seals on all sizes. Overall length is 6¼".

**TWO-PIECE ASSEMBLY** No end glands. Side and end gaskets are pre-assembled and cemented in sleeve grooves.

**HIGH STRENGTH** All parts are high tensile and corrosion-resistant. Sleeve halves are 70,000 psi tensile ductile iron. Nuts and bolts are high strength, corrosion-resistant alloy.



*HERE'S ALL THERE IS TO IT!* Illustration shows two-piece glandless construction. Side gaskets overlap ends of circumferential gaskets for tight seal. Four bolts are only accessories. Tapping boss on each half allows maximum tap of 2 inches. Regularly furnished with one sleeve-half tapped for ¾" pipe.

**JAMES B. CLOW & SONS, INC.**

201-299 North Talman Avenue • Chicago 80, Illinois

*Subsidiaries:*
Eddy Valve Company, Waterford, New York
Iowa Valve Company, Oskaloosa, Iowa

*(Continued from page 182)*

all features visible or identifiable on the aerial photographs, such as buildings, roads, railroads, reservoirs, streams and lakes. Drawn to a scale of one inch to 400 feet, they show all buildings 40 feet or larger correctly outlined and oriented.

The soil analysis maps, prepared to the same scale as the topographic maps, define soil classification boundaries of 40 acres or more in size.

They also show drainage conditions such as the flow line of streams, seasonal spillway channels, lines of subsurface flow, seepage areas, areas of high ground water table, ponds, lakes, reservoirs, and other bodies of water, and ridge lines dividing drainage areas on the watersheds feeding the various reservoirs.

### Possible Remedies

With this information, plus projected population increases for any given area, Department engineers will be able to determine whether or not a potential water pollution problem will exist in the near future. With such an analysis as a basis, they will be able to suggest the most suitable method of waste disposal for any particular area covered by the survey.

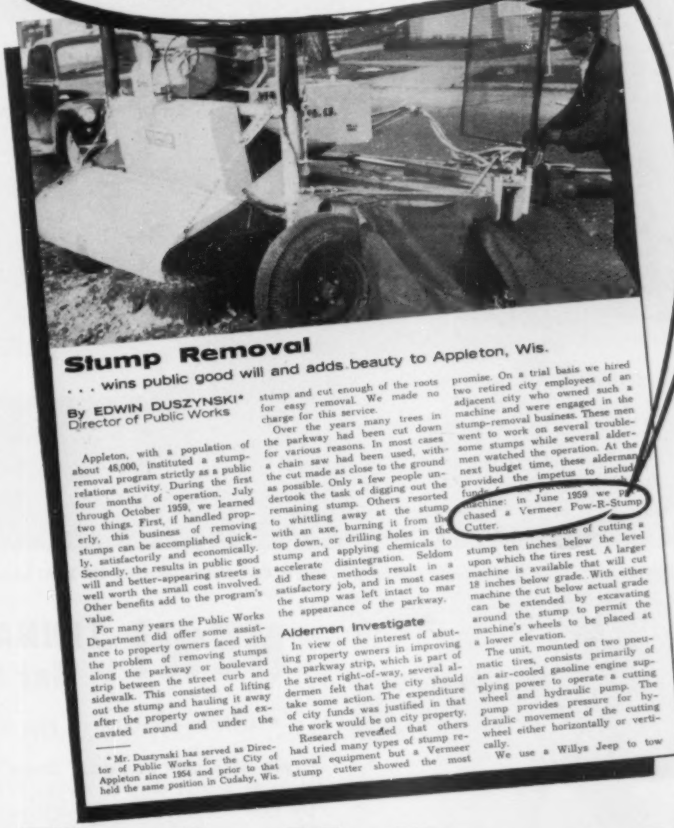
Possible solutions include stricter zoning requirements by local authorities and construction of sewers and treatment facilities. Where soil conditions are suitable, increasing the amount of land around each home to provide adequate absorption may make it unnecessary to construct extensive sewerage systems. In other areas long-range sewer or drainage projects will be necessary.

All professional and engineering services necessary for the preparation of the soil analysis maps by Fairchild were under the direct supervision of Professor Donald J. Belcher, director of Cornell University Center for Aerial Photography Study and president of Donald J. Belcher and Associates, Ithaca, New York.

### Engineering Survey

The next phase of the study consists of an engineering survey by Alexander Potter Associates, consulting engineers of New York, to determine the engineering and economic feasibility of building a comprehensive interceptor system to carry off sewage and other wastes reaching the Croton and Kensico water supply system from these areas. ◄◄

machine: in June 1959 we purchased a Vermeer Pow-R-Stump Cutter.



**Stump Removal**

. . . wins public good will and adds beauty to Appleton, Wis.

By EDWIN DUSZYNSKI*
Director of Public Works

Appleton, with a population of about 48,000, instituted a stump-removal program strictly as a public relations activity. During the first four months of operation, July through October 1959, we learned two things. First, if handled properly, this business of removing stumps can be accomplished quickly, satisfactorily and economically. Secondly, the results in public good will and better-appearing streets is well worth the small cost involved. Other benefits add to the program's value.

For many years the Public Works Department did offer some assistance to property owners faced with the problem of removing stumps along the parkway or boulevard strip between the street curb and sidewalk. This consisted of lifting out the stump and hauling it away after the property owner had excavated around and under the stump and cut enough of the roots for easy removal. We made no charge for this service.

Over the years many trees in the parkway had been cut down for various reasons. In most cases a chain saw had been used, with the cut made as close to the ground as possible. Only a few people undertook the task of digging out the remaining stump. Others resorted to whittling away at the stump with an axe, burning it from the top down, or drilling holes in the stump and applying chemicals to accelerate disintegration. Seldom did these methods result in a satisfactory job, and in most cases the stump was left intact to mar the appearance of the parkway.

Aldermen Investigate

In view of the interest of abutting property owners in improving the parkway strip, which is part of the street right-of-way, several aldermen felt that the city should take some action. The expenditure of city funds was justified in that the work would be on city property.

Research revealed that others had tried many types of stump removal equipment but a Vermeer stump cutter showed the most promise. On a trial basis we hired two retired city employees of an adjacent city who owned such a machine and were engaged in the stump-removal business. These men went to work on several troublesome stumps while several aldermen watched the operation. At the next budget time, these alderman provided the impetus to includ[illegible] funds [illegible] machine: in June 1959 we pu[illegible]chased a Vermeer Pow-R-Stump Cutter.

[illegible] of cutting a stump ten inches below the level upon which the tires rest. A larger machine is available that will cut 18 inches below grade. With either machine the cut below actual grade can be extended by excavating around the stump to permit the machine's wheels to be placed at a lower elevation.

The unit, mounted on two pneumatic tires, consists primarily of an air-cooled gasoline engine supplying power to operate a cutting wheel and hydraulic pump. The pump provides pressure for hydraulic movement of the cutting wheel either horizontally or vertically.

We use a Willys Jeep to tow

* Mr. Duszynski has served as Director of Public Works for the City of Appleton since 1954 and prior to that held the same position in Cudahy, Wis.

# *Thanks,* Mr. Duszynski!

**Mr. Edwin Duszynski, Director of Public Works in Appleton, Wisconsin, tells of his experience with the Vermeer Pow-R-Stump Cutter in the above article from the June issue of American City Magazine. "The most economical method of stump removal I know of," is the way he describes the action of the powerful model 10 Pow-R-Stump Cutter. This is just one of hundreds of outstanding recommendations received each year from cities, parks, golf courses, cemeteries and tree service firms all over the country.**

**PATENTED VERMEER POW-R-STUMP CUTTER MAKES CHIPS OUT OF STUMPS IN MINUTES**

**You'll save hundreds of man-hours and thousands of dollars annually when you remove ugly stumps with the Pow-R-Stump Cutter. Removes any size stump in minutes. It is an easy one-man operated unit. Allows close quarter cutting to sidewalks, buildings, curbs and driveways without damage. There's ONLY ONE POW-R-STUMP CUTTER . . . ask for a FREE demonstration. (Registered under U.S. Patent No. 2912022.)**

**MAIL COUPON FOR COMPLETE ILLUSTRATED LITERATURE AND LOW PRICES NOW**

FROM A STUMP...
...TO CHIPS IN MINUTES
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Send complete descriptive literature and prices on your POW-R-STUMP CUTTER to:

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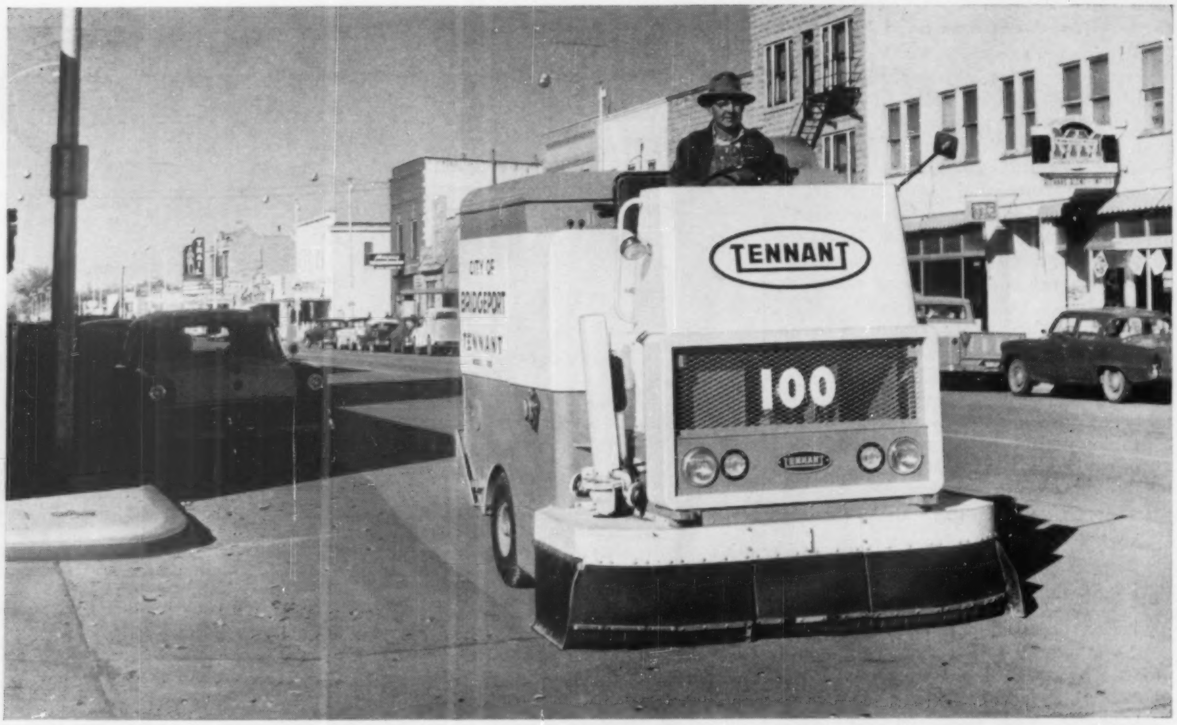

**NEW PAVEMENT LOOKS ITS BEST** when "vacuum-swept" with the maneuverable Tennant "100."

**SWEPT AS CLEAN AS YOUR OFFICE FLOOR.** Tennant's huge 540-square-foot filter captures virtually *all* the dirt . . . even particles as fine as 5 microns, far smaller than the human eye can see. The Tennant "100" sets a new cleaning standard.

**FOR MORE CONGESTED AREAS** such as parking lots, airport ramps, driveways, walks, arenas, the Tennant Model 80 vacuumized sweeper is ideal. Starts, stops and reverses instantly; turns in a 65" radius. Cleans a 53" path; sweeps over 100,000 square feet per hour in open areas.

# NEW! TENNANT system of sweeping for modern paved streets

***• ultra-clean • no dust nuisance • easy to use***

**If you have new pavement,** there's no cleaner, easier way to sweep it than by the *new* system developed by TENNANT—*"precision" vacuumized sweeping*—expressly designed for towns where cleanliness counts most.

**Cleans in 1 pass.** Engineered to meet new sweeping standards, a TENNANT Sweeper actually *lifts* the dirt, even from crevices and pores in pavement.

**No dust, no water**—*another first!* The brooms are vacuum-enclosed for ultra-clean work on modern streets. Ends complaints of usual dust nuisance. Cannot be compared with any other street sweeping system.

**Easy to use.** Short (10′2″) turning radius gives unmatched maneuvering ease . . . allows economical sweeping of areas usually requiring hand work. No special skills needed to operate.

**WRITE TODAY.** *Find out if your town can qualify for this NEW kind of sweeping*—with its many advantages. G. H. Tennant Co., 751K N. Lilac Drive, Minneapolis 22, Minnesota.

OUR 90th YEAR
TENNANT

## VACUUMIZED SWEEPERS

***and other specialized maintenance equipment***

**Power Sweepers**

**Traffic Line Erasers**

**Concrete Routers**

*Included in Newburgh's equipment modernization program were these three 23-yard packer collection bodies mounted on new truck chassis.*

# Newburgh Returns to Sanitary Landfill

## . . . and practically wipes out complaints resulting from the degradation of a sanitary landfill to an open dump

By **W. G. McEVILLY**
Director of Public Works
Newburgh, N. Y.

Two years ago, what started to be a sanitary landfill was no more than a widespread open dump. This situation came about through lack of definite responsibility and rather trying conditions at the dump site, a 40-acre tract located within the city limits and purchased by the city in 1952. It is a low section of land, swampy and cut by several small creeks. Large rocks also interfered with the operation, making it easier to dump wherever it was convenient rather than according to a set plan.

A nearby housing development and a large fire, started by spontaneous combustion, brought the situation to a head. To fight the fire we had to root up sections of the dump, and the ensuing stench added fuel to the already existent flame of criticism. All this took place in early spring of 1959, a time of year when more exhilarating odors normally prevail.

To speed the job of cleaning up the area and restore a true sanitary landfill operation, which took between two and three months, we rented both trucks and bulldozers. The area provides insufficient fill, so material must be hauled in. First we located a borrow site about two miles from the dump and moved our city-owned Lorain half-yard shovel to the spot. While trucks hauled in fill and cover material, the dozers leveled the area and spread the material. Later on we were able to move the shovel to a site adjacent to the fill area, and as a result reduced the hauling distance.

### Sanitary Fill Restored

Meanwhile we reorganized the operation and again established a true sanitary landfill. Physical changes at the site included laying a six-inch water main into the area and installing several hydrants for use in fighting fires should they occur, and establishing a controlled working face. We also maintain at the site a combined firewatch and general watchman on a 24-hour day, seven-days-a-week basis. An arrangement with the fire department provides for one truck, plus one officer to respond to a fire call at the site and remain there until relieved by the public works personnel.

We also appointed John Maney, one of our employees, as sanitation foreman, giving him the sole responsibility for our refuse collection and disposal operations.

A stepped-up rodent-control program is also in force. For the first few months during and following the cleanup a private exterminating firm made a concerted effort to rid the area of rodents and insects. Now they serve on a monthly contract to keep the area rodent free.

The most recent addition is the purchase of a Caterpillar 977 Traxcavator with a three-yard bucket to work at the site. This replaces an old tractor with a bulldozer blade. We still use our shovel and one truck at the site to haul in cover material. Our city-owned Austin-Western grader maintains, on a regular basis, the service roads to the working face.

Since we must haul in cover material, all our street improvement contracts contain a stipulation that excess dirt must be hauled to the landfill site where it is used immediately for cover or stored for future use. On resurfacing work, we save old macadam material for use on landfill service roads.

Each day our own trucks bring to the landfill about 50 tons of refuse, and private vehicles contribute another 20 to 25 tons daily. Thus, the area is being filled at a fairly

*(Continued on page 189)*

**OCT. 20, 1952: 4″ SNOW—WILKES-BARRE-SCRANTON, PENN.**

**OCT. 10, 1954: 6″ SNOW AND SLEET—CLEVELAND, OHIO**

**OCT. 25, 1955: FREEZING RAIN—CHICAGO AND DETROIT**

**OCT. 24, 1956: 3″ SNOW, FREEZING RAIN—SOUTH DAKOTA**

**OCT. 18, 1959: 3″ SNOW—NORTHERN NEW ENGLAND**

(*Source: U. S. Weather Bureau Climatological Data*)

**1960 ?**

**Prepare for early storms—**
**order STERLING ROCK SALT now**

If you're caught without rock salt, early storms can paralyze traffic, cause serious accidents, mean heavy business losses. Don't let this happen to you! Stockpile your Sterling Rock Salt now and stockpile enough. (When treated with Storite, Sterling Rock Salt can be kept from caking even in outside storage.) Order *now* from your nearest International Salt Company sales office.

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PHILADELPHIA • PITTSBURGH • ST. LOUIS • HEADQUARTERS, CLARKS SUMMIT, PENNSYLVANIA

*(Continued from page 187)*

rapid rate. However, in two years the State of New York will take over the major portion of the site for an interchange between an interstate highway and a major north-south thoroughfare through the city. Work has also started on a new Department of Public Works garage on part of the site, and this garage and yard area will utilize the balance of the area.

GMC
80-3
DEPT. of PUBLIC WORKS
NEWBURGH, N.Y.

***Residents receive curb-side refuse collection on a twice-weekly basis. Truck crews consist of driver and two loaders.***

## Incineration

With no more land available within the city limits and the doubtful possibility of obtaining a site nearby in the county, we are making plans for incineration once again. The city did build an incinerator in 1929 but abandoned it in 1952 when the landfill was adopted.

The new plant, to be located on the west bank of the Hudson River, will be a two-unit affair having a total capacity of 200 tons per 24 hours. We already have an engineering studies and design loan from the federal government and preliminary plans call for cylindrical furnaces and a storage pit with space for three trucks to unload at one time. If and when the incinerator is built, we will utilize equipment now operating at the landfill for other public works activities.

Collection for the 32,000 residents of Newburgh is on a twice-weekly basis. We have divided the city into three sections and make collections in the respective sections on Monday and Thursday, Tuesday and Friday, and Wednesday and Saturday. We collect from the downtown business and commercial houses three times per week, and do this at night starting at 6:00 p.m. This takes about three hours and one of the regular crews takes care of the task on an overtime basis.

## Equipment

Equipment consists of three 23-yard Truxmore Pakkers on G.M.C. chassis, one 16-yard Roto Pac, one 20-yard Pak-Mor and one 5-yard open-body dump truck. The packer-truck crews consist of a driver and two loaders while the open-truck crew has one extra man who usually rides the back of the truck to position the load. The drivers help load only when it is necessary.

The crews work on an incentive system and are through for the day when all complete the day's assignment. If one or more crews finish their route early, they must help the others until all routes scheduled for the day are complete.

Each truck makes about four trips a day on the first three days of the week (which are normally the heaviest days) and average three trips a day for the last three days of the week.

In the past two years we have made a concerted effort to replace old, worn-out or obsolete equipment with new and functional equipment. The three recently purchased Truxmore Pakkers were obtained under this plan. These units are relatively short for their capacity (23 yards) and the trucks have plow mountings so they can take part in snow removal activities.

The Newburgh refuse collection and disposal program, although not new, is certainly a carefully revised one. Better service through the purchase of new equipment and a return to a true sanitary landfill operation wherein each day's accumulation of refuse is covered with about ten inches of earth has eliminated most complaints — some of which were legitimate. We are confident that we will be able to keep up this degree of service in the future. In looking back, it is difficult to understand how a particular service can slip over the years as it did at the disposal site. However, with our new organization and the placing of one man in responsible charge, this should not happen again. ◄◄

***Refuse is compacted and covered as soon as it is dumped at the sanitary landfill site. City and private trucks haul some 70 tons to the site each day.***

**Municipal**
**Public**
**Relations**

# The City Tells Its Story

Edited by **PAN DODD EIMON**

---

Missouri and Florida cities succeed with MPR projects

## League Women, Fraternity Men Make Surveys, Help City Officials Rouse Public Interest

Bolstered by their respective city halls, volunteer groups in two communities, Ferguson, Mo., and Ocala, Fla., have made a major contribution to better relations between their city governments and citizens.

There are, literally, ladies all over the place in the attractive 1960 annual report of the City of Ferguson, Mo., which is entitled "Six Years of Home Rule, The League Looks at Ferguson." The report is practically a reprint of a League of Women Voters survey of city government, made this year after six years under a home rule charter.

Say the three mayors—John A. Thompson, Clement C. Helmsing, and Larry M. White — who have served during those six years, "The ladies obviously liked what they saw when they studied and analyzed the operation of our city under the council-manager form of government and compared it with previous administration."

The good - looking, two-color (black and blue, multilithed, white paper) booklet covers each department of city government. Quotes from the League survey appear in blue; information added by the city is in black.

Citizen participation, public relations, and the "manpower pool" get a page each, some indication of the importance given citizen-city hall relations in the Ferguson government. The city publishes annual reports, lay-language tax and financial leaflets, and an employee handbook. The city charter, which was written by a group of citizens and approved as a result of citizen campaigning, provides for nine different boards and commissions on which 51 private citizens serve.

Of special interest is the way these appointments are filled through a Manpower Pool set up five years ago. Citizens of Ferguson are continuously urged to submit the names of people they think could contribute effectively as members of boards. Anyone can submit a name—and does. At least twice a year, the persons whose names have been submitted are interviewed by the council to ascertain their fields of interest, qualifications, and availability. When vacancies occur on the boards and commissions, this listing is available to the council.

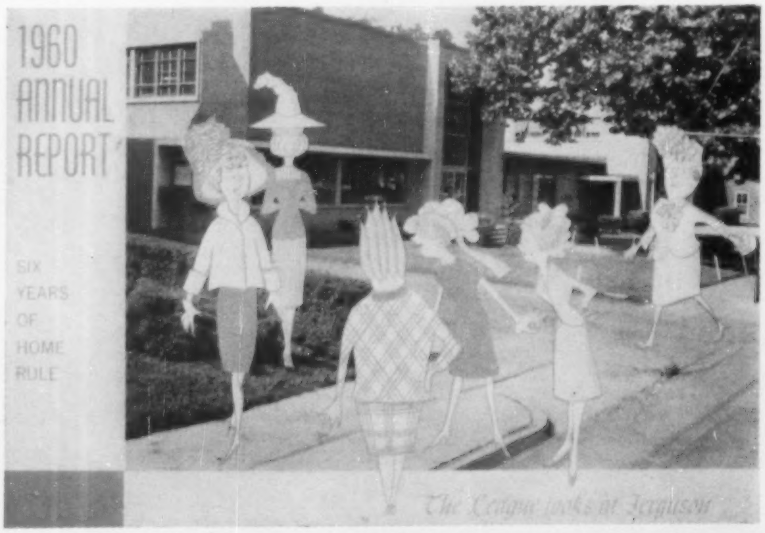
In their findings under title of "citizen participation," the League-City of Ferguson report says, "It is difficult in a suburban society to catch and hold the sustained interest of many citizens in the day-to-day problems of municipal government . . . Democracy and local self-government are strengthened when citizens are willing to give freely of their time and effort to serve on various boards and commissions in association with the elected officials. This factor has been strengthened under the present city charter."

### In Ocala

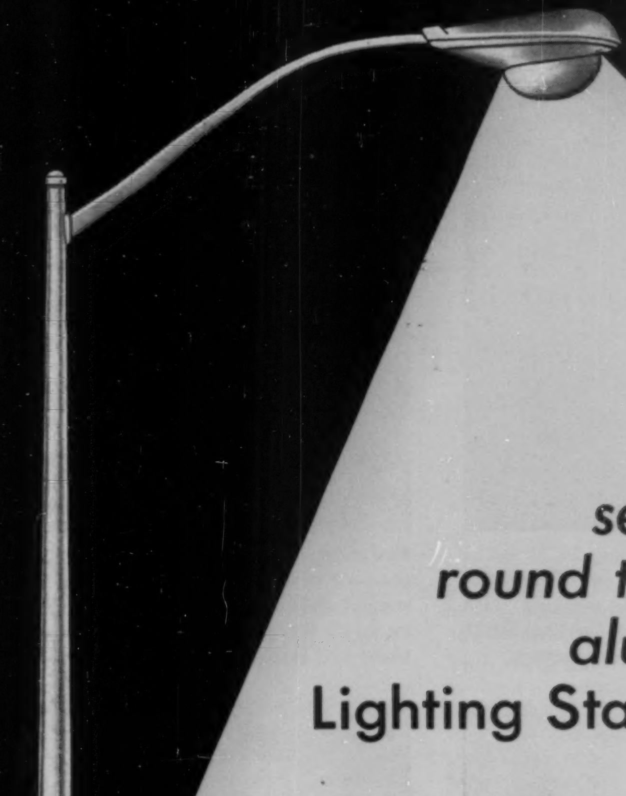
In Ocala, Fla., the municipal public relations agents were members of the Alpha Tau Omega fraternity at the University of Florida. In Ferguson, Mo., the group was the League of Women Voters. Both groups surveyed city government; both have a publication issued as part of the project; both worked with the full cooperation of the city governments involved.

Actually, in Ocala, the survey was an idea of City Manager J. M. Baldwin who suspected that citizens

*(Continued on page 193)*



***The city report is based on a League of Women Voters survey of local government carried out this year; it makes good use of the ladies' data and enthusiasm.***



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## *seamless round tapered aluminum* Lighting Standards *by* KERRIGAN

To keep pace with the growing market, we are now manufacturing seamless, round tapered aluminum lighting standards for street, highway and area lighting . . . in addition to our line of steel and aluminum octagonal shafts.

Full data catalog for the new line is now available. Send for your FREE copy NOW!

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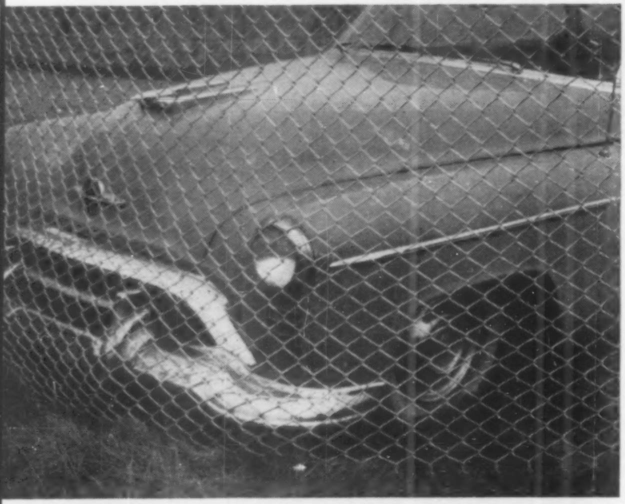
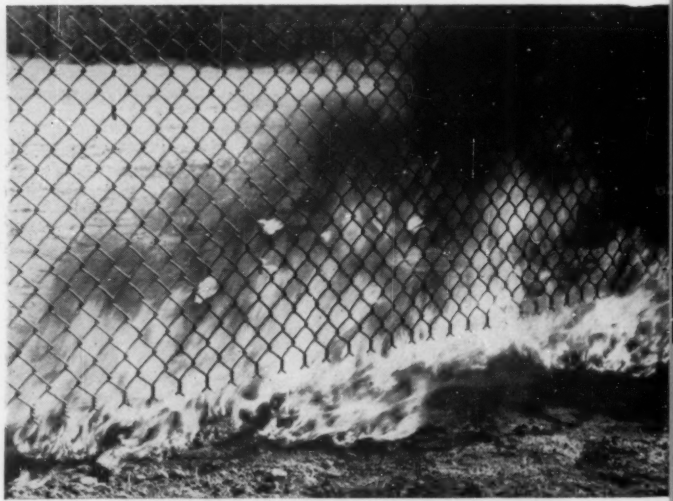
CORPORATION

# Tests Prove USS Cyclone Steel Fence Quality

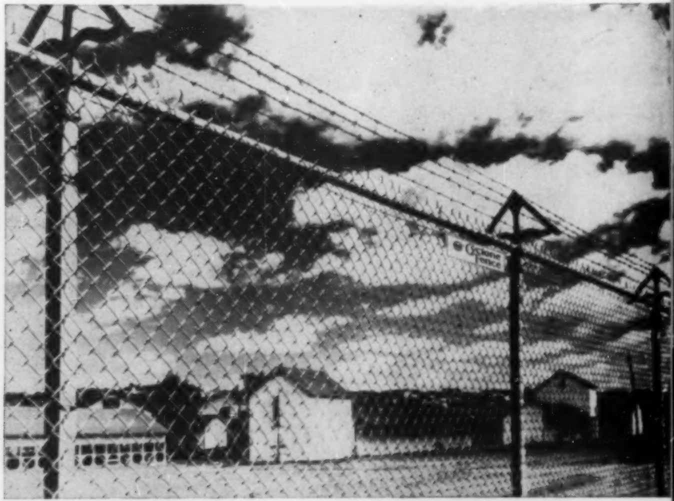


**Impact Test.** A 4000-pound car, traveling at 35 miles per hour, was driven directly into a panel of Cyclone Chain Link Fence Fabric. The car was stopped. The fence did not break or fail—proof that Cyclone Steel Fence has the strength to withstand severe impact.



**Fire Test.** This raging fire was deliberately set to test the heat resistance of Cyclone Steel Fence . . . and that rugged steel fabric did not melt or fail. Should a grass or trash fire break out too close to a Cyclone Fence, there will be no damage.

**Corrosion Test.** More than 10 years ago this panel of Cyclone Steel Fence was installed 45 feet from the ocean. Even in this extremely corrosive atmosphere it is still strong and serviceable. Cyclone Fence owes its unusual corrosion resistance to its heavy coating of zinc.



**Time Test.** The fence shown here is a 25-year-old Cyclone veteran . . . still giving good service. Once Cyclone Fence is properly installed, it requires almost no maintenance. It continues to give good service, year after year.

For additional information on USS Cyclone Fence, write to Cyclone Fence, American Steel & Wire, Dept. 0365, 614 Superior Avenue, N.W., Cleveland 13, Ohio.

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**American Steel & Wire**
**Division of**
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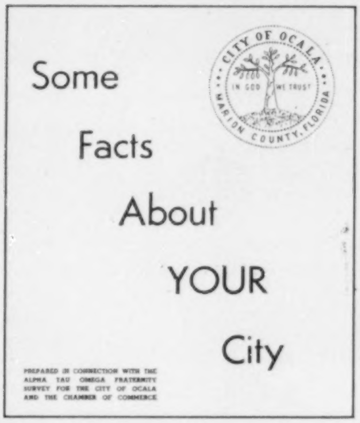
United States Steel Export Company, Distributors Abroad

*(Continued from page 190)*

weren't as aware of city government problems and accomplishments as they might be. He thought interest could be awakened with an approach that was "out of the ordinary."

With the help of the Ocala local Chamber of Commerce and 75 members of the ATO fraternity, Manager Baldwin organized a Saturday morning door-to-door survey to find out what Ocala citizens knew and thought about city operations and to hand out a fact-filled pamphlet about the local government and its works.

Fraternity interviewers asked 900 Ocala householders 12 questions covering the city government, attitudes toward Ocala growth and development, and Ocala shopping facilities. After the interview, each householder got a two-sheet folder, "Some Facts About Your City." It answered questions just asked and made a strong pitch for: living inside city limits (one saves more than 50% on fire insurance rates, alone); Ocala's parking facilities (downtown parking space for 6,240 different cars each day); and the city's low tax rate.



Some

Facts

About

YOUR

City

PREPARED IN CONNECTION WITH THE ALPHA TAU OMEGA FRATERNITY SURVEY FOR THE CITY OF OCALA AND THE CHAMBER OF COMMERCE

***After the interview was over, the Ocala householder got this fact-filled sheet about the city's tax rate, its parking facilities and its future.***

## Survey Statistics

There is no claim that the 900 persons interviewed were a "sample" in the scientific-polling sense. Manager Baldwin and other city officials will use survey statistics with this understanding. However, the survey did reveal an appalling lack of information about city government (95% of the people did not know what the tax rate was, 50% knew two or less of the city's council members).

The survey plainly indicated that the city government should provide more information, in a compelling form, to citizens. The survey also showed that citizens think Ocala's "most pressing need" is for new industry.

Ocala's local newspaper carried several articles on the survey and a Sunday feature on the results. An out-of-town paper, read in Ocala, did a feature article with photographs on the project. One Ocala radio station carried interviews relating to the city survey. Local civic groups made the survey a subject for club discussion. Survey results, with their challenge to the local government and to business developers, thus came to the attention of Ocala's leading citizens in an effective way.

Enthusiastic Manager Baldwin sums up like this. "The survey gave the public an opportunity to express themselves and help the community without leaving their homes, writing

*(Continued on page 195)*

56-hp WISCONSIN ENGINE
cuts snow removal costs 3 ways

The husky air-cooled four-cylinder Wisconsin can keep you from being snowed-under — literally and by costs.

The engine brings you low-cost attachments, like the Sno-Thro, to mount on rolling stock you already own. And it's powerful enough to handle the heaviest snow — around the clock and in sub-zero cold.

The heavy-duty Wisconsin is precision-built for long life, minimum wear, and lowest upkeep cost. You can count on it whenever emergency strikes — and to stay on the job until it's over.

Factory parts and service are available through 2000 Authorized Wisconsin Service Stations. You can get parts from stock when you need them. Prompt, expert servicing puts your engine on the job before you even miss it.

Keep your streets open for less money this winter with Wisconsin-powered equipment. Engine sizes 3 to 56 hp. Get Bulletin S-251 on the entire line. Write Dept. U-10.

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WISCONSIN-POWERED SNO-THRO, made by Wausau Iron Works, Wausau, Wis., enables one man to remove up to 15 cu. yds. of snow per minute. It can be used for piling or loading trucks.

U-229

## Naugatuck KRALASTIC
The Original ABS Resin

Huge 40-foot length of KRALASTIC pipe is easily carried by one man in Orange County, Cal., during installation of 4-mile pipeline, by Pacific Pipeline Construction Co., Montebello, Cal.

# Replaces Metal Pipe for Good

A new 4-mile KRALASTIC® pipeline, being used by Orange County, Cal., to carry natural and sewer gas, not only ends the need for yearly replacement, but made replacement of the original metal pipe far easier than expected.

**KRALASTIC WON'T CORRODE.** Electrolytic soil conditions caused the metal pipe previously used to fail in a year. Non-electrolytic KRALASTIC is not only unaffected by the soil's acids, but resists attack by most chemicals.

**KRALASTIC PIPE IS EASY TO INSTALL.** KRALASTIC pipe is flexible—goes easily around bends. Joints are made in seconds by solvent welding. No winches or other heavy equipment are required. One man can easily carry a 40-ft. length of 4½-in. KRALASTIC pipe. On this job, a three-man crew installed the pipe in ⅓ the time it normally takes to install metal pipe.

**KRALASTIC IS STRONG.** This pipe was tested at 50 psi without rupture. The KRALASTIC pipe also combines toughness, high impact strength, excellent dimensional stability, and high heat resistance with its other desirable properties. In fact, during construction, a heavy truck ran over a section of pipe lying above ground without even cracking it.

Additional proof of KRALASTIC's outstanding properties are the more than 14,000 miles of KRALASTIC pipe now in use. For information, see your Naugatuck representative or write:

**United States Rubber**
Naugatuck Chemical Division
DEPT. 944K ELM STREET
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**KRALASTIC** RUBBER-RESINS • **MARVINOL** VINYLS • **VIBRIN** POLYESTERS

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*(Continued from page 193)*

a letter, or even using the telephone. The survey did stimulate more interest in civic affairs in Ocala. Although citizen interest is extremely difficult to measure, there are more indications of real citizen concern . . . much more than has been seen in Ocala for a long time."

## Questionnaire

The questionnaire used in the Ocala survey is straightforward, easy-to-score, and elicits a surprising lot of information. It fits easily on two 8½" x 11" sheets, triple-spaced. Questions asked were:

1. *Do you have any idea of how much you save on one thousand dollars of fire insurance on your home by living in the city?*
2. *What is the city's tax rate?*
3. *Can you name your city councilmen? Any of them?* (Check off those named, each one being listed for the surveyor.)
4. *Do you know how much parking space is available in the downtown area?* (Encourage a guess, surveyors were instructed!)
5. *Among the following, who decides on how your city tax dollar is spent?* (Mayor, county commission, city attorney, city manager, city council, finance officer, none of these.)
6. *Have you visited or called City Hall in the past year or talked with some city employee?* (If answer is yes, citizen is asked to rate the person whom he contacted as "friendly and courteous, matter of fact and business-like, indifferent and distant, or as impolite and insulting.)
7. *Would you like to see more job opportunities in Ocala?*
8. *Do you think Ocala will grow?* (If so, tell why. Choices are: good tourist town, business and job opportunity, good place to retire, good government, climate, recreation, churches, central location, other.)
9. *Did you vote in the last city election?* (If not, the reason.)
10. *Which of the following statements best describes your city government?* (Honest and efficient, adequate and effective, too large and too slow, careless and inefficient).
12. *What do you think is Ocala's most pressing need?*
13. *Do you enjoy shopping in Ocala?* (If not, is the problem: parking and traffic congestion, trouble finding exactly what you are looking for, having to walk too far from store to store, poor service, other.) ◄◄

***A University of Florida interviewer asks an Ocala housewife in her garden, "What do you think is the city's most pressing problem?"***

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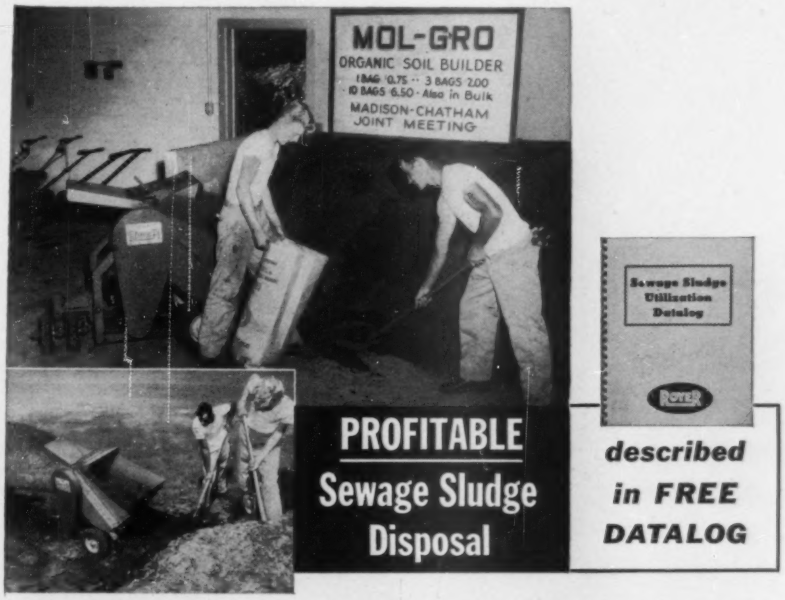
Ocala's questionnaire and fact sheet and the Ferguson-League of Women Voters' report may be obtained by writing directly to the city halls of the respective cities.


MOL-GRO
ORGANIC SOIL BUILDER
1 BAG 0.75 -- 3 BAGS 2.00
10 BAGS 6.50 - Also in Bulk
MADISON-CHATHAM
JOINT MEETING
Sewage Sludge Utilization Datalog
ROYER

**PROFITABLE Sewage Sludge Disposal**

***described in FREE DATALOG***

The Madison-Chatham (N.J.) Joint Meeting bags and sells their *Royerated sewage sludge cake.* While not big business, the operation does represent an additional source of municipal income.

The need for increasing municipal income, keeps growing in importance. The climate of today's economy warns against tax increases. Economies of operation are being searched for.

One of the most obvious economies that any organization can practice is the elimination of waste. Yet many sewage plants continue to dump or burn their sludge cake — throwing away or sending possible income up in smoke.

In April 1957, Royer published a new edition of their "Sewage Sludge Utilization Datalog," pointing the way to turning sewage from an expense into a profit. Since then, we've gone through two printings.

If your community is still destroying this source of revenue, write today—and learn how you, too, may experience *profitable sewage sludge disposal.*

Please send me a copy of your new edition of the information-packed "Sewage Sludge Utilization Datalog."

Name__________ Title__________

Plant__________

City__________ Zone_____ State_____

☐ I am interested in a demonstration of the Royer Shredder at work.

**ROYER FOUNDRY & MACHINE CO.**

ROYER

166 PRINGLE ST.
KINGSTON, PA.

## Ageless Concrete Pipe
## Installed Next to Ageless Arsenal Foundation
## For Pittsburgh Water Distribution

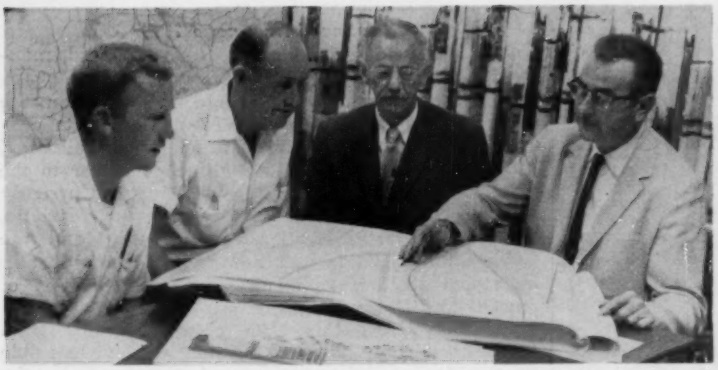
The building on the right is located at 40th and Foster Streets in the City of Pittsburgh and is part of the old Allegheny Arsenal built in 1814. Dig down alongside its foundation and you'll find it as good today as the day it was laid, unaffected by moisture or the elements of the soil. This foundation is built of a material that is ageless when buried underground—stone.

The pipe line being installed is made of another material unaffected by the soil—concrete. The longer concrete is buried underground, the harder and stronger it gets and the more it assumes the characteristics of the limestone from which it comes.

This pipe line will serve the City of Pittsburgh for a long, long time.

Prestressed concrete steel cylinder pipe was used for the 42-inch, 1680-foot-long line which was installed under the direction of John A. Murphy, Director, Morris L. Wolf, Chief Engineer, and John W. Bilotta, Distribution Division, Department of Water, City of Pittsburgh. Frank Kukurin & Sons, Inc., East McKeesport, Pa., was the contractor. The pipe was manufactured by Price Brothers Company, with headquarters plants at Hattiesburg, Miss. for the South and Dayton, Ohio for the North.

**Price Brothers**
CONCRETE PRESSURE PIPE



*Here Mr. Herbert McCollum (right) serves as chairman of the Cobb County-Marietta Water Authority. With him is Mr. Lex Jolley, also a member of the Authority, Harry G. Black, superintendent of the Cobb County Water and Sewerage System, and Sam P. Hensley, consulting engineer.*

→

*And here, Mr. McCollum (left) switches to County Commissioner, helping to direct the facilities of the Cobb County Water and Sewerage System.*

## For Cobb County, Ga. . . .

# A Water Authority—With a Difference

Cobb County, Ga., uses an authority type of administration to obtain its water supply. But this authority has the word, "responsibility" wrapped up in its organizational features in a way that few others across the nation have, and that many could copy.

Most such "authority" organizations are autonomous. In general, the members are appointed, but cannot be removed for the terms of their office, except for proved malfeasance. They generally can incur bonded indebtedness, set water rates, establish operating policies without consulting with anyone and without regard to the city's general master plan, as long as the financial balance sheet is sound.

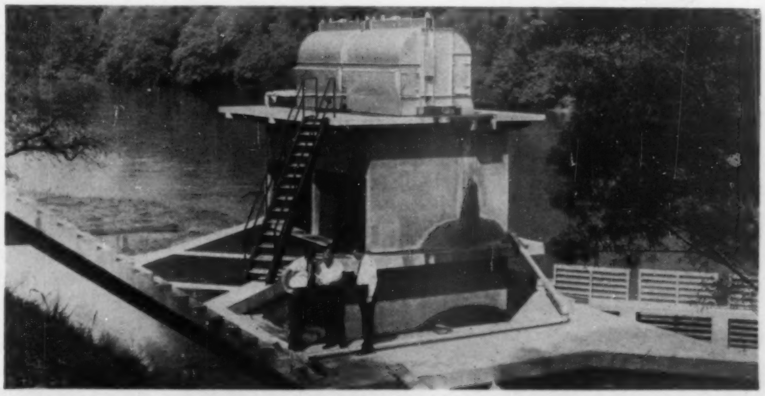
This is not true here. State legislation setting up the organization requires a tie with the county governing body. The County Commissioner of Roads and Revenues, an elected officer, automatically becomes chairman of the board of the Cobb County-Marietta Water Authority. Thus the public has access, through an official of its own choosing, to the policy-making decisions of this utility.

## Key Man

Key man in this unusual waterworks arrangement is Mr. Herbert McCollum, County Commissioner. Mr. McCollum has served in this capacity since 1956. Prior to that, he served as chief clerk in the Commissioner's office, doing the billing and collecting for the county water system; thus his experience in administering and expanding the county water system is detailed and professional. In 1947, when he first started with this work, the county system had 200 services; now it has over 12,000.

Serving with Commissioner McCollum on the water authority is Mr. Edward Chastain, appointed by the mayor and council of Marietta, the largest city within the county. The third member of the Authority is Mr. Lex Jolley, selected by the other two members, and the only requirement is that he live within the county. Thus, urban city, county and general interests all find themselves represented on the

*(Continued on page 198)*



***The Chattahoochee River is the source of water for this county-operated system.***

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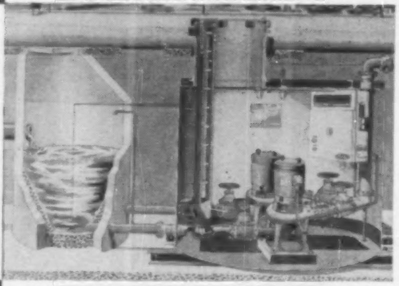
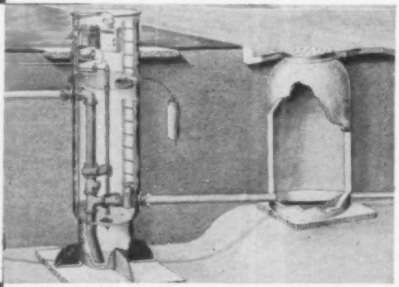


Write S&L

SMITH & LOVELESS pump stations available in standard sizes for capacities from 100 GPM to 4500 GPM per pump with two or three pumps per station. Even larger capacity stations are built to order. Proved in over 1200 installations from coast to coast, Alaska and Canada.

. . . About our complete line of factory-built Pneumatic Ejector Lift Stations for installations requiring low capacities



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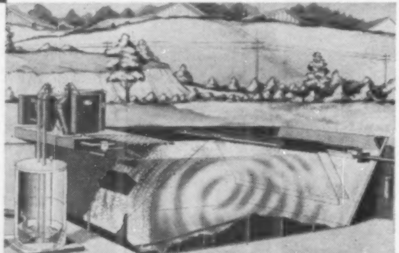
SMITH & LOVELESS pneumatic ejectors like the "Mon-O-Ject" offer you a universal selection of lift stations to meet your requirements. Our complete line of ejector lift stations ranges from small, single-dwelling sewage ejectors for the home to large, duplex units like the "Du-O-Ject" for stand-by dependability.

. . . About our factory-built Treatment Plants for Motels and Factories, Schools and Small Subdivisions



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SMITH & LOVELESS factory-built "Oxigest" sewage treatment plants provide a low-cost, dependable treatment facility with minimum annual maintenance. Available in single units to serve from 10 to 100 homes — or can be installed in parallel, as needed, to serve a growing subdivision.

**Write today for our Free Engineering Data Manual on Sewage Lift Stations and Sewage Treatment Plants Address: Department 10 for Details**

(2479)

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**Smith & Loveless**

DIVISION — UNION TANK CAR COMPANY

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*(Continued from page 197)*

Cobb County-Marietta Water Authority board, making the tie of responsibility definite and clear.

This system came into being in 1954 when the Georgia state legislature passed an appropriate permissive enabling act. The Authority "wholesales" purified water from the Chattahoochee Riiver to the county and various local governments. Currently it has as customers, the municipalities of Marietta, Smyrna, Acworth, Kennesaw, Woodstock, and the Cobb County Water and Sewerage System. It also maintains standby rights for the municipalities of Austell and Powder Springs.

Prior to 1954, this area obtained water from various wells, but as these became less and less able to provide for the growing need, the people in the county looked to the Chattahoochee River. Not only is the supply ample but the water is good. Its turbidity averages around 20 to 25 ppm; its alkalinity, 15 to 18 ppm; its hardness expressed as calcium carbonate is never over 50 ppm; and its pH is approximately 6.8.

With the formation of the Authority came the construction of a water purification plant able to treat 8,000,000 gallons of water per day. Within four years, the capacity of this plant was doubled.

## Purification Facilities

The current purification facilities consist of an intake at the river's edge, drawing water through a large Link-Belt automatically cleaned bar screen. A pair of DeLaval pumps, each rated at 8 mgd against a 260-foot head and powered by 500-hp Westinghouse motors, lift the water through a 30-inch pipeline to an open, earth reservoir able to hold 25,000,000 gallons.

It is located on a hill nearby, high enough so that the water can flow through the plant by gravity. It also provides a substantial period of settling before purification, making the treatment much more simple. As the water is being pumped, a pair of Wallace and Tiernan feeders apply chlorine sufficient to leave a residual that persists through the treatment process. A second application of chlorine from four feeders in the plant will raise the residual to about 0.4 ppm as it leaves.

As the chlorinated water enters the plant, it passes through a 24-inch Builders Iron Foundry venturi meter, with controls so arranged that the volume of water entering automatically adjusts the chemical feed.

## Chemical Feeding

Upon entering, the water receives its coagulating chemicals from five Omega loss-in-weight feeders. One applies alum; one applies lime to adjust the pH of the water, one adds an alkali to react with aluminum sulfate for coagulation, one applies carbon for taste-and-odor control, and the fifth feeder applies sodium silicofluoride in order to inhibit the incidence of dental problems.

The chemically-laden water then flows to the combination coagulation-settling basins. There are eight of these, each able to retain the water for six hours. Each holds 500,000 gallons.

The clarified water then flows to the filters to remove the remaining floc. There are 8 of these, designed to receive the water at the rate of two gallons per square foot per minute.

The filtered water, with its chlorine residual adjusted as mentioned previously, then is pumped to the Authority's storage points through a seven-mile Lock Joint prestressed concrete pipeline 30 inches in diameter. A second B-I-F venturi, this with a 16-inch throat, measures the water as it leaves. The plant has four pumps which have capacities of 2, 4, 8, and 12 million gallons daily against a 232-foot static head.

The pumps are electrically powered; however a 125-hp Sterling gasoline engine provides standby power in case of an electrical breakdown. The Authority maintains two storage reservoirs, one of steel and the other of concrete, each able to hold 4,000,000 gallons, from which the county distribution system and the various cities draw to retail the water to their people.

## County System

The Cobb County Water and Sewerage System operates as a division of the County Advisory Board activities. The county maintains an aggressive policy of extending water mains along county roads wherever planning studies indicate that growth can be expected.

These water main extensions are financed directly from water revenues, without any special assessments placed against abutting property owners or by general tax levy. The county also will cooperate with developers planning to build new homes. If the developer buys the water pipe to county specifications, the county will install it without charge. The county currently has three elevated water-storage reservoirs located in the unincorporated area and holding 800,000 gallons; 200,000 gallons; and 250,000 gallons. Currently under construction is a big, new Chicago Bridge and Iron water reservoir capable of holding 1,500,000 gallons when completed.

To illustrate how the water wholesaling arrangement works, the Cobb County-Marietta Water Authority sells water to the Cobb County Water and Sewerage System and to the various incorporated municipalities at the rate of 19 cents per 1,000 gallons.

Cobb County, in turn, sells to its individual customers at the following rates:

| | |
|---|---|
| First 2,000 gallons | $2.50 (minimum charge) |
| Next 18,000 " | .50 per 1,000 gallons |
| All in excess | .35 " " " |

The county also provides a commercial rate of 25 cents per 1,000 gallons.

The county currently has 12,000 water services, all metered, which it reads and bills monthly. It currently has been adding new meters at the rate of 100 per month.

## Benefits

The benefits of this unusual wholesale-retail water arrangement have been substantial. It has provided fire protection to many areas for the first time, reducing insurance rates as much as 50%. New homes are being erected at the rate of about eight per day. Industry also has moved into Cobb County, manufacturing everything from chemicals to sail boats. The largest is the Lockheed plant.

Mr. S. P. Hensley, of Hensley and Associates, Marietta, Ga., is the consulting engineer for the Authority and the County Water and Sewerage system. Mr. Jack Davis is superintendent of the water purification plant and Mr. Harry Black is superintendent of the Water and Sewerage System. ◄◄

Smith & Loveless
VERTICAL CLOSE-COUPLED
"Non-Clog"
SEWAGE PUMPS

Built to the most exacting requirements by the world's largest manufacturer of factory-built sewage lift stations.

The One Pump Designed to Meet All the "Must" Requirements for Sewage Service

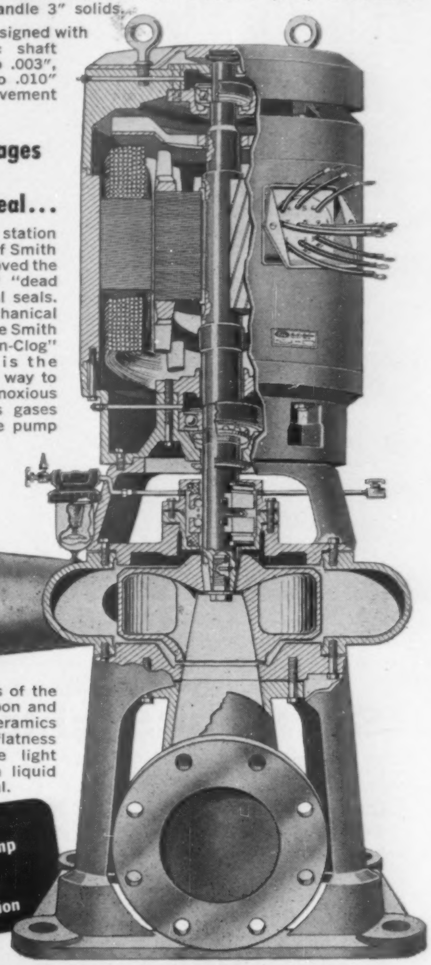
The Smith & Loveless "Non-Clog" sewage pump is the result of years of experience with over 1,400 varied pump station installations.

The ultimate in design and construction, the "Non-Clog" pump is precision manufactured of superior materials—with over-size shaft and bearings. Special attention is given to corrosion and abrasion resistance and ease of maintenance. Maximum pump efficiencies with ability to handle 3" solids.

The pump is designed with close tolerances: shaft runout is held to .003", shaft end play to .010" and vibration movement to .005".

The Advantages of the Mechanical Seal...

The sewage lift station field experience of Smith & Loveless has proved the advantages of "dead tight" mechanical seals. The double mechanical seal system in the Smith & Loveless "Non-Clog" sewage pump is the most satisfactory way to prevent sewage, noxious and dangerous gases from entering the pump room.



Mating surfaces of the long-wearing carbon and diamond-hard ceramics are lapped to a flatness tolerance of one light band to insure a liquid and gas-tight seal.

A Superior Pump for a Superior Pump Station

For further information, write for new Bulletin 500-A
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For clearing land for building . . . for cleaning up after windstorms . . . you bring profits into focus when you set your sights on Homelite. Two new Homelite One-Man Chain Saws have just been introduced . . . the 700D direct drive and the 700G gear drive. These two new models with seven big improvements give you 10% more cutting power. One man can do your cutting faster with less fatigue on him and with less cost to you. As for maintenance, Homelite has always been famous for very low maintenance costs. In fact, a full 7-month guarantee goes with each of these saws. As for service, Homelite Factory Branches and Chain Saw Dealers are located throughout the country. This "next-to-your phone" service cuts downtime for repairs.

Homelite chain saw dealers and Homelite factory branches are located throughout the country. Your nearest one is as close as your phone. Call or write for convincing demonstration or fast service in any way.

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**ONE MAN CHAIN SAWS**
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in Canada—Terry Machinery Co., Ltd.

# Who Gets the Contract?

The following are the comments of fourteen city purchasing agents scattered across the nation who answered the National Institute of Governmental Purchasing's call for a discussion of "practices in the awarding of contracts for supplies, materials and equipment under a competitive bidding system"—whether to the lowest bidder, the lowest responsible bidder, or to the local bidder.

## Baltimore, Md.

"In Baltimore, we award business to the lowest responsible bidder meeting specifications, regardless of his location. In the case of tie bids, we award to the local firm." *George W. Warren, Jr., City Purchasing Agent, Baltimore, Md.*

## Seattle, Wash.

"The Division of Purchases, City of Seattle, has no system of preference, except for a provision of the City Charter which provides that 'the City Purchasing Agent shall give preference to those bidders who agree in their bids that the supplies, materials or equipment bid shall be produced, manufactured and/or fabricated within the State of Washington, provided that such be the fact and that the price bid does not exceed the lowest bid by more than 5%.' Presently we are procuring quantities of electric cable and equipment in Great Britain and elsewhere. As a public agency we are under pressure from time to time to confine our purchases as much as possible to local sources. It has been my experience that whenever we put an umbrella over any class of suppliers they immediately take advantage of us. This was true in the case of gasoline a few years ago where one company established a refinery in the State of Washington. We estimated that it was costing us $20,000 a year to deal with this firm on the basis of the 5% preference. Recently additional companies have established refineries in the state, so that we no longer have the problem on this item." *Paul R. Hendricks, City Purchasing Agent, Seattle, Wash.*

## Toledo, Ohio

"The City of Toledo awards to the lowest and best bidder irrespective of the location. However, in case of the bids where all things are equal, the order of preference is as follows: 1st—articles made in Toledo; 2nd—articles offered by Toledo merchants; 3rd—articles offered by Toledo sales representatives; 4th—articles offered by out-of-town vendors or salesmen." *H. G. Rebensal, Commissioner, Division of Purchases and Supplies, Toledo, Ohio.*

## Dallas, Tex.

"The City of Dallas awards first to a business house located in the city in case they are tied for low bid. If no local company is considered as low bid, then the county is considered, next the state and then out of state." *J. W. Dorff, City Purchasing Agent, Dallas, Tex.*

## Kansas City, Mo.

"In awarding contracts for supplies, materials and equipment, the City of Kansas City, Missouri, has always accepted the lowest responsible bidder irrespective of location. I sincerely believe that it is the responsibility of any and all purchasing officers to notify our Department of Justice when prices on a given item are identical." *William I. Hornbuckle, Commissioner of Purchases and Supplies, Kansas City, Mo.*

## Buffalo, N. Y.

"We, in Buffalo, award to the lowest responsible bidder irrespective of location or place of busines." *Joseph R. Stiglmeier, Director, Division of Purchase, Buffalo, N. Y.*

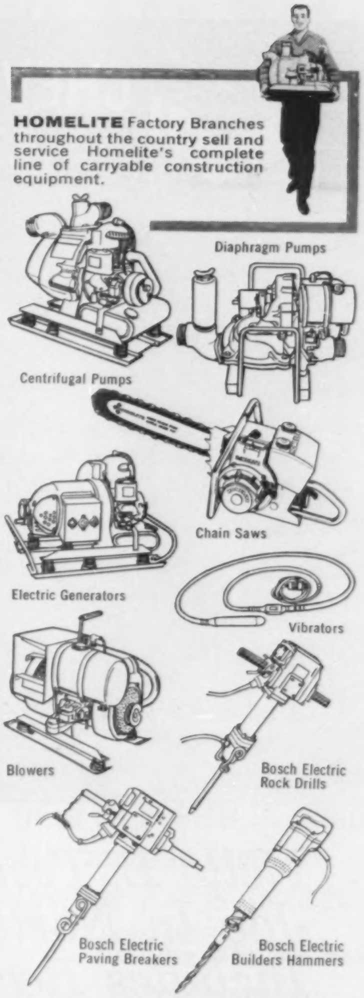
## Philadelphia, Pa.

"The City of Philadelphia provides no system of preference to local business firms. Our law requires that the award be made to the 'Lowest Responsible Bidder.' This appears to be one of the best documented phrases I have run into. In the case of tie bids, all other things being equal, awards are made to a local firm." *Michael H. Sura, Commissioner, Procurement Department, Philadelphia, Pa.*

## Milwaukee, Wis.

"The City of Milwaukee, when all things are equal, gives preference in the following sequence: a) to those bidders who manufacture their own products within the city limits and in case of more than one low tie bid in this category, lots shall be drawn; b) within the limits of the county of Milwaukee; c) to local tie bidders who package, process or through some other substan-

***(Continued on page 203)***



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**SOUTH:** GEORGIA: Atlanta • FLORIDA: Jacksonville, Miami • LOUISIANA: New Orleans (Metairie), Shreveport (Bossier City) • NORTH CAROLINA: Charlotte, Raleigh • OKLAHOMA: Oklahoma City • TENNESSEE: Knoxville, Memphis • TEXAS: Dallas, Lufkin

**MID-WEST:** ILLINOIS: Chicago (Stone Park) • INDIANA: Indianapolis • MICHIGAN: Detroit, Grand Rapids • MINNESOTA: St. Paul • MISSOURI: Kansas City, St. Louis • NEBRASKA: Omaha • OHIO: Cincinnati, Cleveland, Toledo • WISCONSIN: Milwaukee

**WEST:** CALIFORNIA: Fresno, Los Angeles (Alhambra), Sacramento, San Francisco • COLORADO: Denver • OREGON: Portland • UTAH: Salt Lake City • WASHINGTON: Seattle, Spokane

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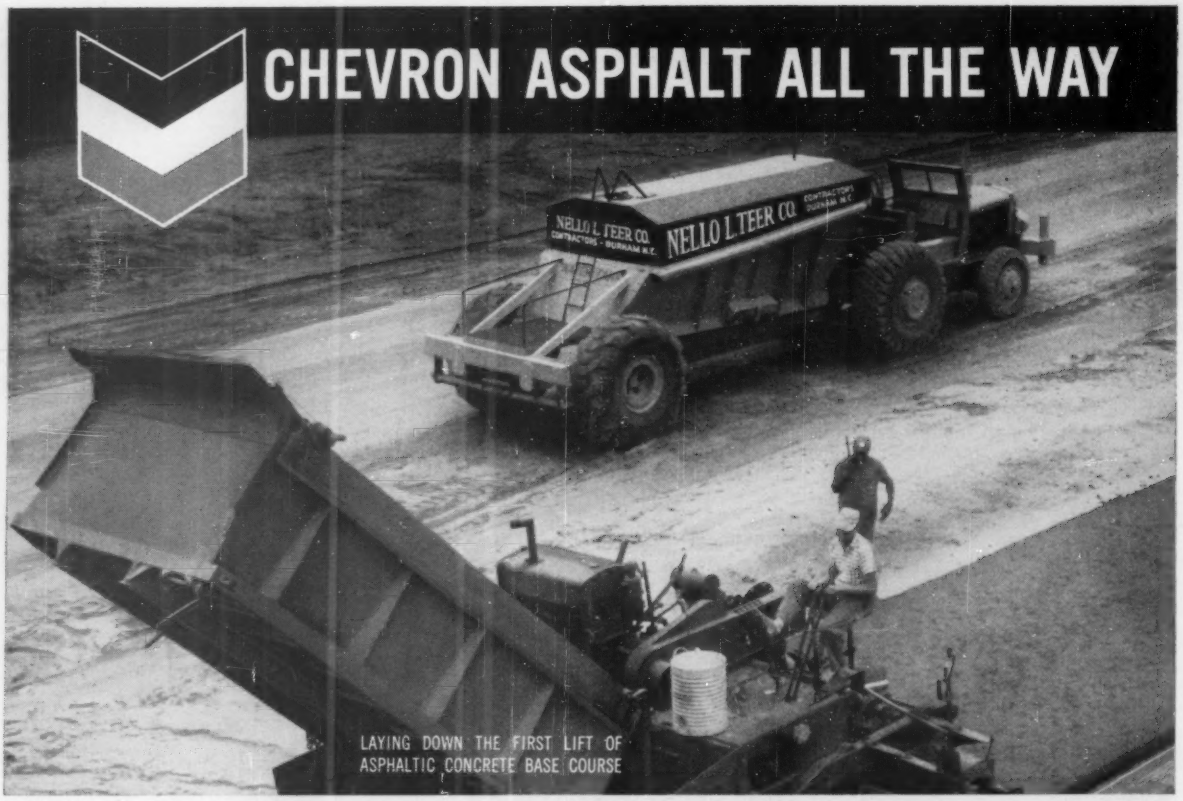
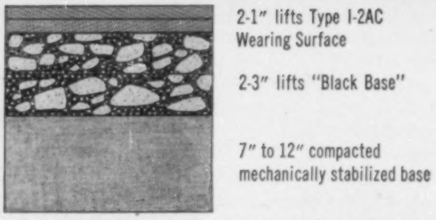
# CHEVRON ASPHALT ALL THE WAY



LAYING DOWN THE FIRST LIFT OF ASPHALTIC CONCRETE BASE COURSE

## *Nello L. Teer Company Job In North Carolina Includes Record Asphalt Paving Award*


2-1″ lifts Type I-2AC Wearing Surface
2-3″ lifts "Black Base"
7″ to 12″ compacted mechanically stabilized base

CROSS SECTION VIEW OF PAVEMENT CONSTRUCTION

On Interstate Route 95, North Carolina, the Nello L. Teer Company, of Durham, North Carolina, is the prime contractor on a highway construction project that includes the largest asphalt tonnage contract ever awarded by the North Carolina Highway Dept.

This project fittingly crowns 50 years of activity in the construction field by the Teer Company.

The job called for new construction of divided pavement each side 24′ wide, south from the Harnett County line 14.55 m. to a point 5 m. north of Fayetteville.

The paving contract covered the placement and compaction of 7″ to 12″ of mechanically stabilized base; placement and compaction of Asphaltic Concrete "Black Base" course in two 3″ lifts; and placement and compaction of Type I-2 Asphaltic Concrete wearing surface in two 1″ lifts. Asphalt surface treated shoulders were provided full length over a mechanically stabilized base.

Overall, the "Black Base" and I-2 Wearing Surface required 210,000 tons of Asphaltic Concrete.

All work is being done under Project 8.13438. Sponsor: North Carolina State Highway and Public Works Commission. Resident Engineer: H. B. Smith; Division Engineer: J. W. Spruill, 6th Division, Fayetteville, N. C.

Chevron Asphalts: supplied by American Bitumuls & Asphalt Company, represented on the job by Sales Engineer George Mitchell.

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*(Continued from page 201)*

tial operation have employees and facilities for these purposes in the City of Milwaukee; d) in the County; e) to local low tie bidder who maintains a bona fide business office in the City of Milwaukee whose product may be made outside the county; f) to local low tie bidder who maintains a bona fide business office in the County of Milwaukee whose product may be made outside the confines of the County." *Andrew L. Lehrbaummer, City Purchasing Agent, Milwaukee, Wis.*

### Atlanta, Ga.

"There is no system of preference here to local business firms and in the case of tie bids, we award to a local firm. We have no idea of making a change from this policy as we feel it would be very unwise to do." *Ernest J. Brewer, City Purchasing Agent, Atlanta, Ga.*

### Chicago, Ill.

"Chicago awards to the lowest responsible bidder meeting the specification regardless of what part of the world he comes from, except those areas behind the so-called Iron Curtain. Where a bid is tied, the local bidder receives the preference." *John F. Ward, City Purchasing Agent, Chicago. Ill.*

### Cleveland, Ohio

"In Cleveland, we award contracts to the lowest and best bidder regardless. All tie bids are referred to the Mayor's office for recommendation." *Leo Weil, Commissioner, Division of Purchases and Supplies, Cleveland, Ohio.*

### Winston-Salem, N. C.

"The City of Winston-Salem awards to the low bidder regardless of location. When bids are equal we award to the local vendor." *A. C. Shepherd, City Purchasing Agent, Winston-Salem, N. C.*

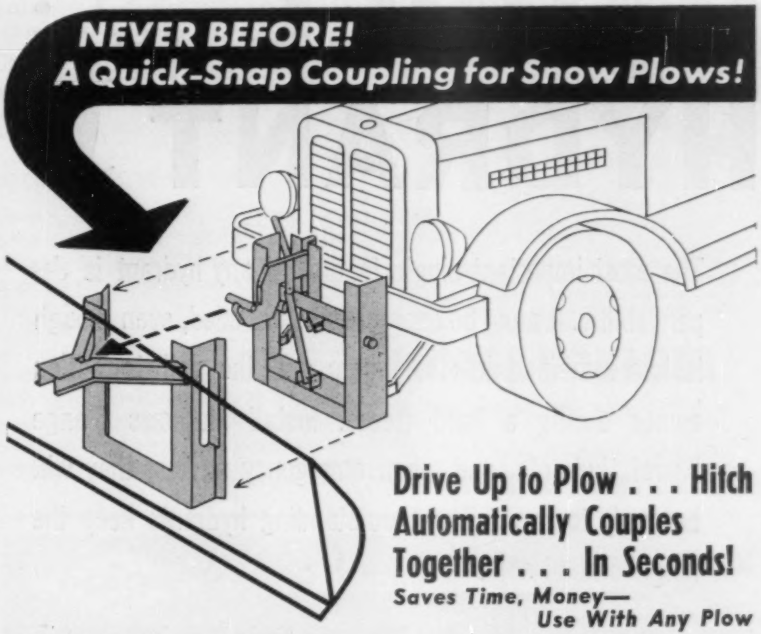
### Minneapolis, Minn.

"A number of years ago we had a low bid on sewer manhole rings and covers and catch basins from a Winona foundry. The bids were rejected and readvertised in the hope that the local foundries would receive the business. This caused considerable publicity in the newspapers in the town of Winona and organizations in Winona were going to boycott Minneapolis for this practice and Minneapolis would lose considerably more than they would

*(Continued on page 205)*

**NOW! Buy Any Make Snow Plow with Revolutionary Husting Hitch**

DEMAND the Husting Hitch on
Your Favorite Make of Snow Plow


NEVER BEFORE!
A Quick-Snap Coupling for Snow Plows!

**Drive Up to Plow . . . Hitch Automatically Couples Together . . . In Seconds!**

*Saves Time, Money—
Use With Any Plow*

**The Husting Hitch is Now Available on Every Make Snow Plow Listed**

- BALKO
- FLINK
- GLEDHILL
- GOOD ROADS
- ROOT
- VALK
- WISCONSIN
- SPECIAL

***The Husting Hitch***

The revolutionary new HUSTING HITCH (patented) does what no other so-called fast coupling can do . . . offers true one man operation in just seconds without leaving the cab. Disengaging is just as easy.

The Spring Pin Action does the trick. The spring loaded pins snap into slots (see illustration) when the truck is driven up to the plow. Standard Hydraulic Controls then permit the driver to lift the plow and get under way without leaving the cab.

HUSTING HITCH equipped Snow Plows and Trucks are interchangeable. Once equipped, the truck can pick up any similarly equipped Plow, be it a Vee, Rigid One Way, Reversible or Trip Blade. ANY TRUCK CAN BE USED ON ANY PLOW.

The HUSTING HITCH has been offered for sale commercially and been in field use from New York to Minnesota since 1955. Each year sales have increased and our claims are based on the experience gained by well over 1,000 installations.

***The Husting Flexible Link***

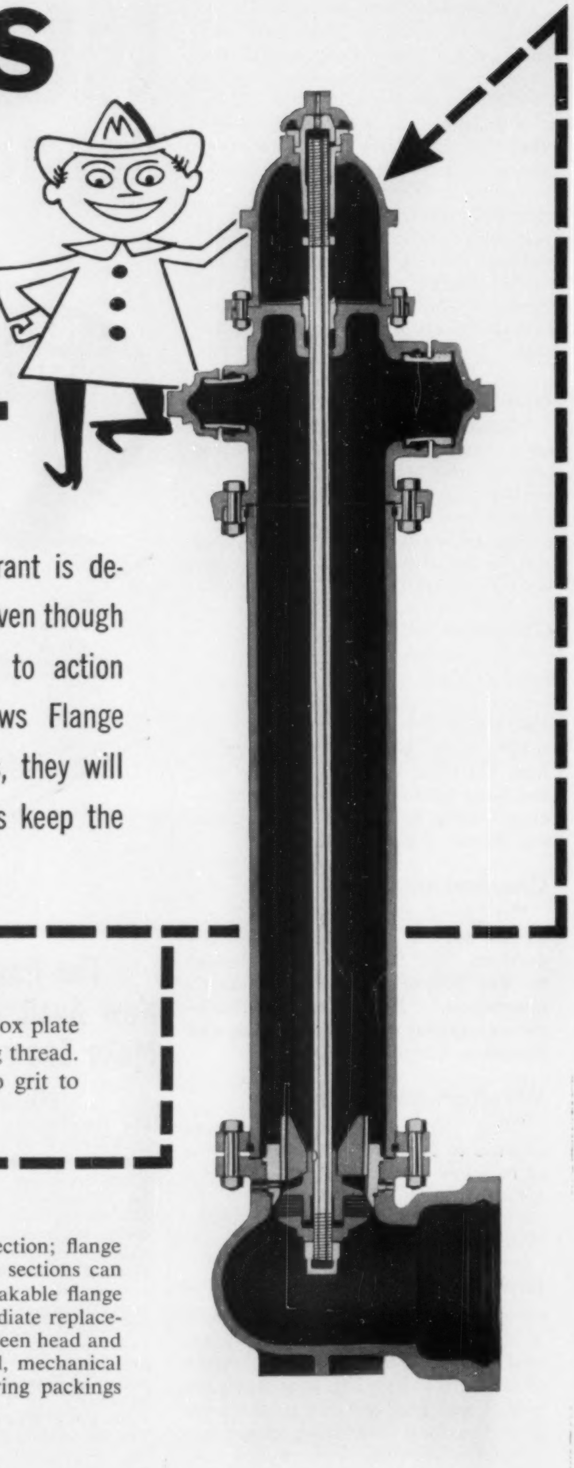
A newly developed FLEXIBLE LINK (Pat. Pend.) gives HUSTING HITCH equipped plows additional freedom to follow the contour of difficult roadbed conditions found at some intersections and in alleys. It permits the snow plow to rotate about a central axis. Springs are used to hold the plow level in the carry position and prevent it from going out of control when in action next to a ditch.

The patented HUSTING HITCH (Standard or in combination with the FLEXIBLE LINK) can do a job for you. It is rugged, dependable and foolproof. Be sure to ask for it on your favorite make of Snow Plow. For further information write for descriptive literature and learn about this really new development in Snow Plow Couplings.

**KASTEN MANUFACTURING CORPORATION**

MARKET 9-2311 ALLENTON, WISCONSIN

# MATHEWS FLANGE BARREL HYDRANT



The most important single feature of any hydrant is dependability. It must be operable when needed, even though it has remained idle for years and the call to action comes during a hard freeze. Install Mathews Flange Barrel Hydrants, and when emergency strikes, they will be ready to serve! These outstanding hydrants keep the neighborhood safe.

## DRY HEAD CONSTRUCTION

Cast integral with the nozzle section, the stuffing box plate keeps water and sediment away from the operating thread. No ice to jam the thread in freezing weather; no grit to wear out the operating thread.

**AND THESE FEATURES, TOO:**
A swivel flange permits nozzles to be faced in any direction; flange barrel reduces accident costs because top cap and nozzle sections can usually be salvaged from broken hydrant • Optional breakable flange and stem coupling snaps in traffic accident, permits immediate replacement without excavating • Extension piece insertable between head and barrel or between barrel and elbow • Available with bell, mechanical joint or flange pipe connections; conventional or "O" ring packings

***Conform to latest AWWA specifications***

## R. D. WOOD COMPANY

**Public Ledger Building, Independence Square, Philadelphia 5, Pa.**

Manufacturers also of Mathews Modernized Hydrants, R. D. Wood Hydrants, R. D. Wood Gate Valves, and "Sand-Spun" Pipe (centrifugally cast in sand molds)

*(Continued from page 203)*

gain." *G. R. Arneson, City Purchasing Agent, Minneapolis, Minn.*

### Denver, Colo.

"The City and County of Denver does not have 'Preferential Purchasing' as it is generally known, and is unalterably opposed to such a philosophy in governmental purchasing. A 'Preferential Purchasing' policy can only result in higher cost to a municipality. Such higher cost can only be classed a subsidy. In certain lines of merchandise or services this can readly lead to collusion regardless of the size of the municipality. In smaller cities, of course, this potential condition compounds itself because of a limited source of supply locally. Without a specific preferential treatment, governmental purchasing by award to the lowest responsible bidder generally weights the purchasing in favor of the local supplier when all factors are considered under the legal definition of 'responsible' bidder. Such factors as comparison of price, delivery, term, etc., place the local supplier in an additional advantageous position without an arbitrary preference." *T. J. Millisack, Manager, Department of General Services, City and County of Denver, Colo.* ◄◄

## Liquor Store Helps Support Village

Whether one approves of liquor or not, the fact is that Edina, Minn., pays for 25% of its village operation by income earned in the village-owned liquor store. Last year, the store did a gross business of over $1,000,000. Moreover, net income to the village over the past 12 years also amounted to more than $1,000,000.

This income has paid for the new village hall, opened in 1954; purchased and built new parks; and contributed substantially to the general tax fund. It amounts to approximately 7 mills on the tax assessments.

Minnesota law permits any city under 10,000 population to establish municipal liquor dispensaries, including cocktail lounges. A city that grows larger than 10,000 must hold an election to approve the continued operation. ◄◄

**INCINERATION**
**WITH**
**Air Pollution Control**
**MORSE BOULGER INC.**
BUILDERS OF THE MOST MODERN INCINERATOR PLANTS IN THE WORLD

MORSE BOULGER
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Incinerator Facts
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☐ Industrial Bulletin 184-A

Contact us, or have your architect or consulting engineer tap our 70 years experience solving Waste Disposal problems—large or small. No obligation.

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**STANDARDIZE and SAVE**

**SNAPOUT PURCHASE ORDER FORMS**
**with inter-leaved carbons imprinted to order**

**Other purchasing forms for small and large governmental units**

**AN INTEGRATED PURCHASING SYSTEM EMBODYING INTERNAL CONTROL**

*Write for catalog and sample purchase order*

**GOVFORMS COMPANY**
111 Broadway New York 6, N. Y.

DEMCOR E-X-P-A-N-D-E-D METAL
**LITTER BASKETS**
*Help keep your city CLEAN*

★ Durable ★ Rigid ★ Weather Proof
★ Low-cost ★ Galvanized ★ Built to last

Write for complete description and prices

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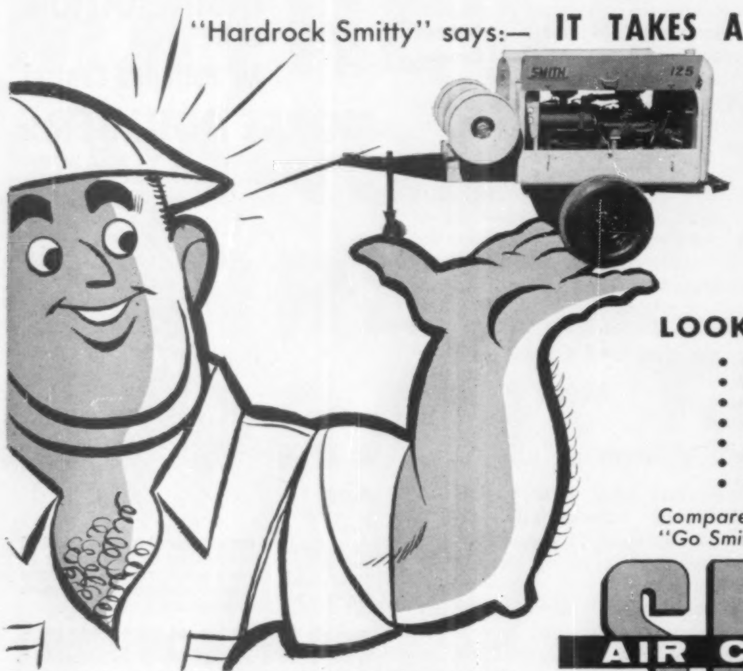
BUS STOP
Bus Stops
Alleyways
Along the Highway
Public Parks

"Hardrock Smitty" says:— **IT TAKES A SMITH 125 AIR COMPRESSOR TO DELIVER ON THE TOUGH JOBS . . .**



*Built to "take it" when the going get tough, the Smith 125 Air Compressor will give you years of low cost, dependable service. The Rugged Hercules Industrial engine delivers over 125 c.f.m. hour after hour, day in and day out.*

## LOOK AT THESE FEATURES:

- **low initial cost**
- **low operating cost**
- **easy maintenance**
- **simple, compact design**
- **12 volt electrical system**
- **125 c.f.m. at 1165 rpm**
- **operates two 85 lb. paving breakers at same time**

*Compare price . . . compare job results—you'll "Go Smith" with "Hardrock Smitty"!*

There's also a complete line of Smith Air Compressors in 45 cfm and 75 cfm models, both portable and stationary.

Ask your dealer for an "on the job" demonstration. (write us for complete information and the name of your nearest dealer.)

**SMITH AIR COMPRESSORS**

**GORDON SMITH & COMPANY, INC., Bowling Green, Ky.**

---

TARCO'S Scotchman
SAVES AS IT SALTS
UNION COUNTY HIGHWAY
TARCO
Scotchman

## TARCO *Dump Body* HOPPERS for Straight De-icing Salts

Gravity feed . . . **no moving parts.**

Tarco "Watchman" Hoppers in two sizes: **Model 3Y—3 cu. yd.; Model 5Y—5 cu. yd.** (Model 1Y—1 cu. yd. for "Jeeps" and pickups). **All welded** steel. **Top screens** and **tie-down clamps.**

Rugged "Watchman" Hoppers used with Type V-3 Electric Cab-Controlled "Scotchman" Spreaders make **ideal one-man operated spreaders.** Spread with body in normal "down" position. Install or remove the Hopper and Spreader **in 20 minutes.**

See your Tarco "Scotchman" Dealer about liberal trade-in allowances.

**TARRANT MFG. CO.**
**23 Jumel Place, Saratoga Springs, N. Y.**

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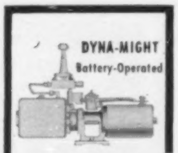
DYNA-MIGHT
Battery-Operated



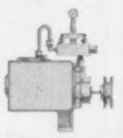
*instant up-and-down action*

**MONARCH**

## POWER HYDRAULIC CONTROLS

*for snow plows*

HY-LO-JACK



HY-LO FOR JEEP
Fan-Belt Driven

One man controls the plow from the cab . . . instant up-and-down action with the flick of a wrist. Snow removal is easier, faster, more economical with Monarch. See your dealer. Write for illustrated folder.

**MONARCH ROAD MACHINERY COMPANY**
1331 Michigan St., N.E. Grand Rapids 3, Michigan

# Detroit Studies Fire-House Locations

"By properly relocating several engine and ladder companies, it is possible to improve the fire protection afforded the city and at the same time reduce the total number of companies and the manpower required." That is the major finding of the Budget Bureau's report on the Detroit, Mich., Fire Department.

## Recommendations

The other major recommendations are as follows:

1. **Reduce batallion districts from 12 to 11, annual saving $51,000.**
2. **Improve the coverage of engine and ladder companies by a relocation program, which will require 46 engine companies (52 at present) and 27 ladder companies (29 at present).**
3. **Man the new distribution of companies in accordance with the standards of the National Board of Fire Underwriters.**
4. **These recommendations will result in a net decrease over the four-year period in budgeted strength of 137 positions for an annual saving of $968,000. This reduction will be achieved entirely by not replacing department personnel.**

The Citizens Research Council of Michigan has reviewed the Budget Bureau study and believes, for the following reasons, that it provides a sound basis for city action:

This report is a comprehensive analysis of Detroit's fire protection needs.

This report strikes a reasonable balance between those who demand excessive fire services and those who might unrealistically jeopardize protection to save tax dollars.

In judging the proper location and correct number of fire companies and the proper manning of these companies, the Budget Bureau has adhered to standards established by the National Board of Fire Underwriters. These standards would require 71 fire companies (44 engines and 27 ladders) compared with the present 81 (52 and 29) if the city were to start with a clean slate. This is, however, an impractical eventuality, because it would permit the use of only 16 of the existing 54 fire stations and would require the building of 35 stations at new locations. The study determined that a correct fire company distribution could be achieved with 46 engine companies and 27 ladder companies.

The recommendations of the report flow from a detailed study of Detroit's protection needs in terms of National Board standards and 15 other criteria including fire potential of particular areas, expressways, present and future redevelopment, physical barriers, etc.

The reduction in the number of companies without sacrificing protection is achieved by reducing overlapping coverage and coverage outside the city limits, neither of which serves to improve the city's National Board rating.

The maximum annual hours of service under the new plan would be 285 hours of service a year for engine companies and 310 hours of service a year for ladder companies out of a total of 8,760 hours in a year. This would include travel time to and from the fire, time extinguishing the fire, and time cleaning up.

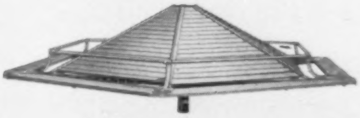
The data on the hours of service of companies in Baltimore, Cincinnati, Los Angeles, Minneapolis, and St. Louis over the same span of years shows one or more engine companies equalling or exceeding the maximum Detroit engine company figure in all cities except Minneapolis. The Detroit maximum of 310 hours service per year for a ladder company (the same maximum as under the present distribution) was exceeded by two companies in Baltimore and Cincinnati and none in the other three cities.

## Less Manpower

The recommended apparatus manning meets National Board standards and permits the use of 134 fewer men.

Station and apparatus locations of city fire departments tend to be based on older and slower apparatus. Thus, many cities support excess apparatus and manpower. There are a number of causes, including the natural resistance of fire officials to part with men or equipment and a reluctance by cities to make necessary capital expenditures for station relocation, in spite of subsequent operating savings. Detroit has done a better job of keeping her fire department layout modernized than some of her sister cities and may now continue to improve that record. ◄◄

"my grandfather makes the best playground equipment in the whole world...because he loves little people like me! he makes slides and swings and see-saws and all kinds of things. they're real strong and they're very safe. if you're going to buy playground things you better talk to my grandfather or my father first. they're both named mr. burke."



**EXTRA HEAVY DUTY MERRY-GO-ROUND... highest quality materials combined with traditionally superior Burke construction make this model the leader of any merry-go-round manufactured.**

Please send me your complete playground planning and specification file.

**J. E. BURKE COMPANY**

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Street:________________

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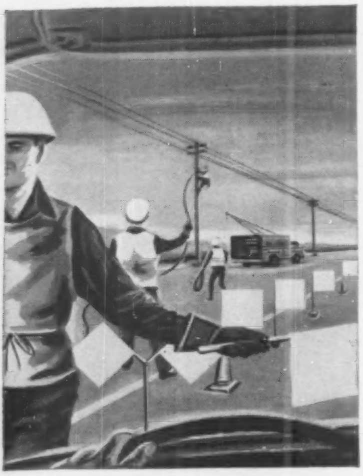

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YOU CAN'T BUY MORE PROTECTION FOR HIGHWAY CREWS, SIGNALMEN, CROSSING GUARDS . . . AND ONLY IPCO FEATURES RAY-D-8* FLUORESCENT HIGH VISIBILITY SAFETY EQUIPMENT. IPCO FLAG STANDARDS, WARNING SIGNS, SAFETY CONES AND PLASTIC BARRIER ROPES ALSO GIVE YOU MORE FOR YOUR SAFETY DOLLAR. WRITE FOR COMPLETE INFORMATION . . . *TODAY.*

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IPCO **SAFETY PRODUCTS**

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**INDUSTRIAL PRODUCTS COMPANY**
**2968 N. Fourth Street • Phila. 33, Pa.**

## Cities Will Need Cargo Airports

Officials who are determined to maintain a high level of services for their municipalities are going to have to prepare for a tremendous increase in transportation of cargo by air. So advised Earl D. Johnson, president of General Dynamics Corporation, in an address to the New York Business Paper Editors Association. This will mean expansion of cargo facilities or construction of new cargo airports for many cities.

Whereas until fairly recently transportation of cargo has been handled almost entirely by truck, train, or ship, developments within the aviation industry now augur a swing to air transport for this service. Popular acceptance of jet aircraft for passenger transportation has released piston-powered plans for cheap conversion to cargo carrying. Another factor in the trend is the aggressive interest of the major airlines in air-cargo operations.

There has been a 300% increase in air freight volume in the last five years. The Stanford Research Institute predicts that air-cargo ton miles, over half a billion in 1959, will be 80 times as great by 1975.

This predicted expansion will create a necessity for modern terminal facilities equal to the traffic. Unfortunately, municipalities as well as airline operators have been hard-pressed to keep pace with the growth of passenger traffic.

Nevertheless, it seems probable that cities determined to maintain superior services for commerce and industry will need to consider early modernization of freight facilities. Far-sighted cities will aim for completely separate cargo airports.

The complete text of Mr. Johnson's address may be obtained from General Dynamics Corp., 445 Park Ave., New York 22, N. Y. ◄◄

* * *

**DIESEL ENGINE OPERATION**

. . . . at Miami's Alexander Orr, Jr., water treatment plant has piled up an impressive record over the years. The plant has four 825-hp Worthington engines, each able to deliver 16½ million gallons of water daily against a total head of 225 feet. Since 1953 these engines have operated over 50,000 hours. They averaged, per hour of operation:

*28 gallons of fuel oil*
*0.19 of a gallon of lube oil*
*34½ cents in materials, operation and maintenance.* ◄◄

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**Allocated***

**METAL FARE TOKENS**

***For Transportation and Parking***

Ideal for multi-fare and fractional fare systems. Attract riders. Speed fare handling. Eliminate change-making delays. Assure accurate sorting, counting and wrapping by maintenance of identical size. An investment . . . not an expense, for they wear indefinitely.

* Allocated . . . an exclusive M & W method of manufacturing metal fare tokens individually designed for each customer. Perforations and lettering are in the same relative aligned position on every token which makes them identical, thus protecting against duplication. This is especially important with no Federal law protection.

***Parking Tokens a Specialty!***

TRANSPORTATION DIVISION

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Established in 1854

**BARTLETT**

**Compound Lever**
W E COMBINATION TREE TRIMMER AND SAW OCTAGON POLE

Double leverage action of pulley gives extra power. Head sections 30" overall. Easily converted from pole pruner to pole saw for large limbs, and extra lengths can be added to make desired length — Capacity of pruner 1¼" with dropforged, sidecutting blade. Saw will handle larger branches. Has 16" curved blade with peg teeth. Other styles available.
The W E Combination with 2-6 ft. sections is recommended, since it can be used as an 8½ ft. pole, using one section or a 14½ ft. pole by using 2 sections.

Price Complete $37.50 Delivered in U.S.A.
Also available with 2-8 Ft. Sections $39.50

**Use Bartlett Saws**

No. 114B—26 inch Special Utility Saw combines for the first time: *Quick* cutting, *Smooth* cutting, *Easy* operation. Price $9.75 delivered in U.S.A.

*Write now for details and complete catalog.*

**BARTLETT MFG. COMPANY**
3035 E. GRAND BOULEVARD DETROIT 2, MICH.

# Prevents blackmail in the substation

*Every* utility pays for a control cable *once*. It's a main artery in each power substation.

But when you pay for the same cable a second time, it's a crime as costly as extortion.

For example: at today's labor rates, installation costs increase surprisingly, if cable is difficult to handle. Eliminate this problem with Rome's thermoplastic control cable, which is cleaner and easier to handle, strip and splice. It has a high-gloss, low-friction surface and pulls through conduit and into control cabinets more easily.

Costly cable failure and repairs can far exceed your original investment. But Rome's thermoplastic jacketing resists moisture, grease, oil, abrasion and corrosives.

*Protects your cable* AND *your budget.*

And the *inside* insulation takes up where the jacketing leaves off, gives you added protection against water absorption, electro-osmosis, corona, ozone and other causes of cable breakdown.

There are many more facts in the case of the people vs. high cable costs. For more information, send for a copy of our "Guide to Representative Wire, Cable and Conduit." Use the coupon, or write on your letterhead.

**ROME CABLE**
DIVISION OF **ALCOA**

**Dept. 23-90** • ROME, NEW YORK

Please send me a copy of Bulletin RCP-100, "Guide to Representative Wire, Cable and Conduit."

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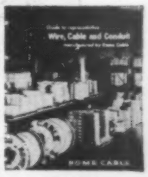
*Title*..........

*Department*..........

*City*.......... *Zone*...... *State*..........



*The completion of Atlanta's attractive new Chattahoochee Water Plant gives the city two independent systems.*

# Water Supply "Eggs" In Two Baskets

## Atlanta's second water-supply system adds 20 mgd to capacity; its own ultimate capacity is set at 60 mgd

By **PAUL WEIR***
General Manager

On January 23, 1960, Mayor William B. Hartsfield of Atlanta pushed a button that started a new era in the history of the Atlanta Water Works, that of dual water systems. No longer are all our eggs in one basket, for instead of one purification plant and one pumping station, we now have two plants and four major pumping stations.

The new facility, known as the Chattahoochee System, is designed for an ultimate capacity of **60 mgd**, with a safe overload capacity of 90 mgd. All pumping stations, major piping, chemical application building, main building, clear-water reservoir, wash-water standpipe, and other features are built for the ultimate capacity. The sedimentation building and filters are constructed to provide the present needed capacity of 20 mgd with a 50% safe overload.

However, the location of the plant on a 20-acre site allows for expan-

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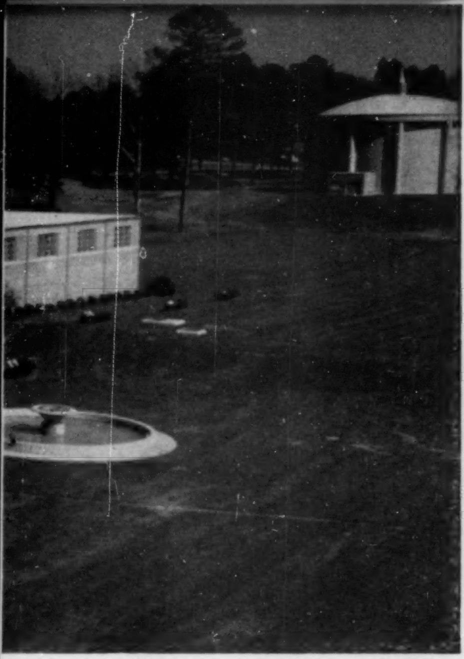
* Mr. Weir is general manager of the Department of Water Works, Atlanta, Ga., and is a past president of the American Water Works Association.



UTILITY TUNNEL

*Utilities, air instrumentation circuits, various chemical feed lines, and control and sampling lines occupy space on both sides of this tunnel connecting the two plant buildings.*

*Ample room in the filter-pipe gallery permits easy access to all equipment; steel piping was used extensively.* →

sion at minimum cost as additional capacity is needed.

This new plant supplements the existing 72-mgd-capacity Hemphill system in supplying water to the 1,600-mile distribution system serving an area of approximately 280 square miles and almost 600,000 people.

## Source

Both systems take water from the Chattahoochee River which brings an abundant supply from the mountains in north Georgia to our door. The Buford Dam recently constructed 35 miles north of Atlanta with its 37,000-acre Lake Lanier, plus other regulating dams, assures Metropolitan Atlanta a firm flow ample to supply over 2,000,000 people. All we have to do is take this water and manufacture it into a usable product and distribute it to our customers.

The Chattahoochee System consists of a raw water pumping station, purification plant, high service pumping station and two large ground storage reservoirs each with its own pumping station.

The raw water pumping station is located adjacent to and takes suction from an existing pump suction well at the Hemphill River Water Pumping Station. The two DeLaval vertical electrically-driven centrifugal pumps pump raw water to the purification plant located about ¼ mile away. Ratings are one at 10 mgd and one at 20 mgd against a head of 80 feet, with the 10-mgd unit so constructed that it can be changed to 20 mgd by changing the impellers. Space is provided for an additional 20-mgd unit.

The pumps are located on the lower level, eight feet below river level to provide positive head at all times, while the motors, controls and station instrumentation occupy space on the second floor above possible flood stage.

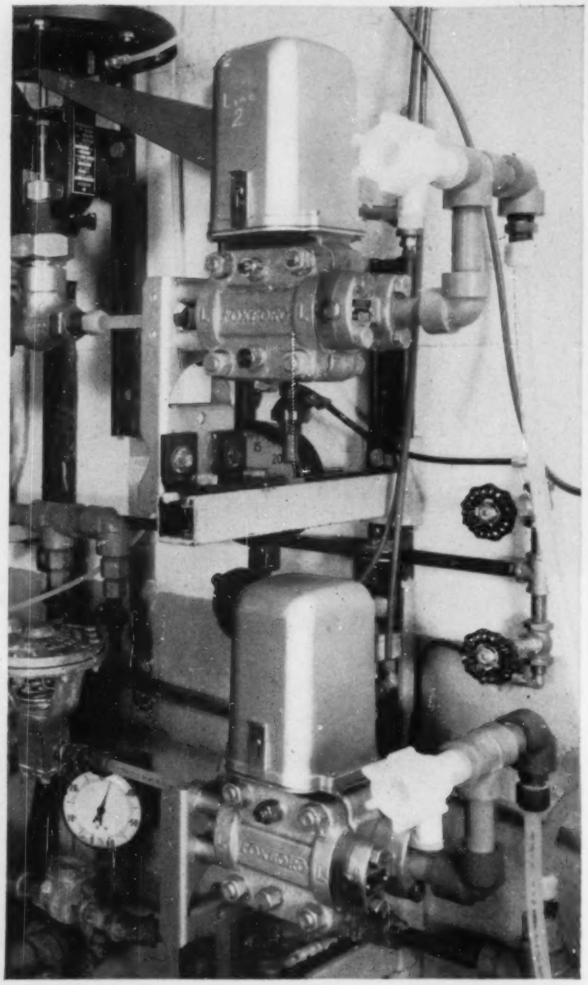
Basic layout of the purification plant consists of flocculation and sedimentation tanks flanked by a chemical application building and a filter building. A utility tunnel, wide enough to permit mechanically driven equipment to pass through it, connects the two buildings.

## Close Chemical Control

In the chemical-application building modern Builders-Providence gravimetric application machines, automatically controlled by rate-of-flow and pH instrumentation, add alum, carbon, clay, and lime or soda ash to the incoming water as needed. Storage bins of 25,000 pounds capacity each, located on the second floor, keep the machines supplied with chemicals. The bins in turn

*(Continued on page 213)*

Foxboro M/40 Ratio Controllers regulate exact amount of liquid alum being added to raw water.



8% $AL_2O_3$ flows right through the Foxboro Integral Orifice d/p Cell. There are no pressure taps — nothing to bind or plug up.

# Problem of metering liquid alum solved with the Foxboro Integral Orifice d/p Cell* Transmitter

## Unique system helps Salem and Beverly Water Board save $2000 per year in water treatment costs

The Salem and Beverly (Massachusetts) Water Supply Board had a problem. They wanted the economy of liquid alum as a coagulant for water treatment. However, conventional metering devices tended to "coat" or bind when exposed to alum-and-water solution. Continued, accurate measurement was impossible.

Installation of Foxboro Integral Orifice d/p Cells proved the perfect answer. Since this unique transmitter can meter flows as tiny as .003 gpm, it permits ratioing alum syrup direct to raw water — without the problems of dilution. What's more, its wide rangeability permits using the same transmitter for both summer and winter alum feed requirements.

In over 2 years of operation, Salem and Beverly report, "there has been no evidence of plugging of our Integral Orifice d/p Cells — measurement has been stable."

Providing stable measurement of liquid alum is just one of the ways Foxboro control can improve your operating efficiency. Ask your Foxboro Field Engineer for complete details — or write for Bulletin 1-15. The Foxboro Company, 959 Neponset Avenue, Foxboro, Massachusetts.

*Trade-Mark

FOXBORO

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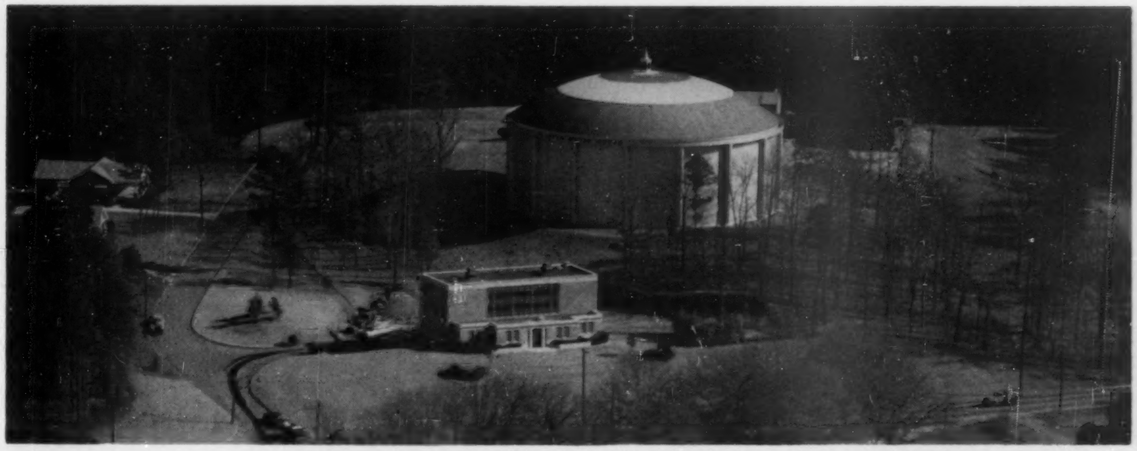


***This picture shows the Adamsville Pumping Station and Reservoir; the Northside installation is identical except for pump capacity and reservoir size.***

*(Continued from page 211)*

are kept full by means of a Hapman conveyor system.

Equipment for liquid alum includes two 12,000-gallon storage tanks located adjacent to the chemical building. The liquid alum flows by gravity into the Minneapolis-Honeywell automatic feed equipment with the rate automatically controlled by dual rate-of-flow and pH instrumentation.

Two complete installations of chlorination equipment using 2,000-pound containers permits pre- and post-chlorination. Each installation contains dual Wallace & Tiernan chlorinators and control panels. Automatic residual chlorine control equipment and instrumentation maintains chlorine application. Chemical needs and application rates are determined in a modern chemical laboratory located within the chemical building.

The three flocculation basins provide a 45-minute retention time at the design rate of 6.66 mgd per basin, or 20 mgd for the three units combined. Each is equipped with three Walker mechanical reel-type flocculators with vari-speed drives permitting peripheral paddle speeds of from 0.5 to 1.5 feet per minute.

The three sedimentation basins also have a rated capacity of 6.66 mgd each and at design flow provide a detention period of five hours. They are equipped with Walker circular clarifiers. Outlet is through V-notch weirs.

Following flocculation and settling, the water passes through one of six rapid sand filters located in the filter building. Rated at 3.33 mgd each, they are of the double-unit single-wash type, equipped with Wheeler bottoms, Palmer surface washers, and use sand media. Control is by Builders-Providence electro-pneumatic equipment from the operating consoles.

The main filter piping is of welded steel, with Dresser couplings, coated on the inside with coal tar enamel. The electrically operated Allis-Chalmers butterfly valves are controlled from the consoles while the air cylinder actuated rate controllers are operated from the consoles and the main control center.

Filtered water flows to a covered, reinforced concrete clear water reservoir of 6,000,000 gallons capacity or directly to the filtered water pumping station. The location will not interfere with future expansion.

## Filter Water Pumping

The three electrically driven De Laval high service pumps, located in a wing of the filter building, have capacities of 10 mgd, 20 mgd and 30 mgd against a head of 240 feet using from 500 hp to 1750 hp. These pumps can be operated singly or in parallel. Although the one pump is presently rated at 20 mgd, its capacity can be increased to 30 mgd by merely changing the impeller.

The pump discharge lines contain cylinder oil pressure operated Golden-Anderson cone check valves. Overhead traveling cranes, with complete room range and a transfer stub to permit travel outside the building, handle heavy equipment.

This station pumps water south through a 42-inch main about 5.5 miles, supplying the low area through which it passes, to the 5,000,000-gallon reservoir and pump station at Adamsville. Water is also pumped north from the plant through a 30-inch main about 3.1 miles, supplying the low area along its route, to the Northside 4,000,000-gallon reservoir and pumping station.

The Adamsville and Northside pumping stations are identical except for capacity. Both contain three DeLaval electrically driven centrifugal pumps so designed as to increase capacity by changing the pump impellers. The pumps at the Adamsville station now rated at 10 mgd, 15 mgd and 20 mgd at 197- to 220-foot head will eventually be increased to 10 mgd, 20 mgd and 30 mgd. The three units at the Northside station, now rated at 5.0 mgd, 7.5 mgd and 10 mgd at 185- to 198-foot head, will eventually be rated at 5.0 mgd, 10 mgd and 15 mgd.

With the new plant in service, we isolated the low area along the river pass from the Hemphill system and through which the new trunk mains now supply them from the Chattahoochee system. The two new reservoirs float on the Chattahoochee system which has a water level of 1,020 feet. These reservoirs supply the two new pumping stations which discharge into the rapidly expanding north and south sections of the Hemphill system in which we maintain a water level of 1,175 feet.

All sections of the entire system are equipped with the most modern types of automatic and semi-auto-

*(Continued on page 215)*

Palm
Beach Lakes
in West
Palm Beach
Florida

### *Uses hundreds of*

# IOWA FIRE HYDRANTS and GATE VALVES

One of hundreds of IOWA fire hydrants and gate valves being installed at Perini-Westward development within the city limits of West Palm Beach, Fla.

IOWA Fire Hydrants and Gate Valves form an important part of the more than $4,000,000 investment in water and sewage facilities for a completely new "City Within a City", a Perini-Westward development, entirely within the city limits of West Palm Beach, Florida. One of the owners is Louis R. Perini, Chairman of the Board of the Milwaukee Braves and President of Perini Corporation.

The eye-catching central pavilion dominates a 12-acre exhibit in the nine-square-mile area where more than 40,000 people are expected to live. Hundreds of Iowa valves and hydrants were installed to control the flow of water and provide fire protection throughout the 100 miles of cast iron water mains serving this $450,000,000 development.

The IOWA products were selected because of their proved long life and easy maintenance...plus the assurance that parts and replacements will be always available. Such longtime future service is an important part of every purchase of IOWA products.

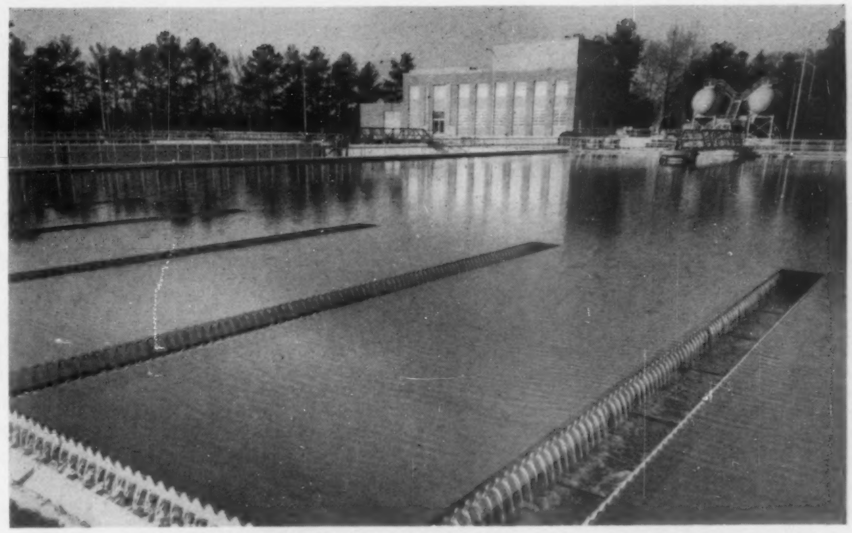
*Let us send you details on IOWA's complete line of valves and hydrants*

IOWA
Valves
Fire Hydrants
Accessories
IOWA VALVE COMPANY

## IOWA VALVE COMPANY

**Oskaloosa, Iowa**
***A subsidiary of James B. Clow & Sons, Inc.***

*The present capacity of the flocculation and sedimentation basins is 20 mgd with planned expansion up to 60 mgd. The tanks in the background contain liquid alum.*



*(Continued from page 213)*

matic controls. These include push button controls for operation, monitoring instrumentation to give the operator a complete picture of the operation in his section, and a central control panel with remote filtration control, rate-of-flow control, and monitor instrumentation of chemical application, sedimentation and filtered water pumpage. Located here also are radio and interplant communications for coordinating this division with other divisions of the Atlanta Water Works.

Another form of control takes place in the chemical and bacteriological laboratory in the main building. One of the modern features is a continuous taste and odor measurement of purified water. Another is the Radiological Monitoring Laboratory where we measure the actual atomic fallout properties of the Chattahoochee River.

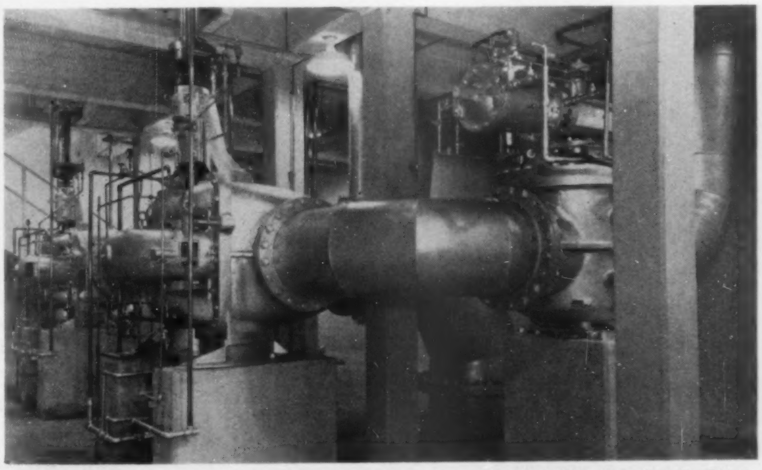
The total cost of the Chattahoochee System, including water mains, came to approximately $10,000,000. This we financed by Water Department revenue certificates and a $5,000,000 city general obligation bond issue.

## Savings

Besides giving us two independent systems, construction of a new system saved a considerable sum of money. Studies showed that about $7,500,000 could be saved by building a plant at this new location rather than by enlarging the existing Hemphill system. An additional advantage, resulting in an annual saving in pumping costs of $18,000, consists of the dual system which makes it possible to supply the low areas along the river at lower pressure.

Many persons participated in the development of this complex system. Space permits the mention of only a few. These include our able consultants, Wiedeman & Singleton, consulting engineers of Atlanta, and Tucker & Howell, architects. Mr. W. D. Hudson, Vice President, Pitometer Associates, rendered invaluable service in helping to establish proper hydraulic balance between the new system and the existing system. Arthur Pew Construction Company, Atlanta, was general contractor of structures and Burford, Hall & Smith, Atlanta, furnished and installed all equipment.

I also wish to pay special tribute to William B. Hartsfield, Mayor; Hon. James E. Jackson, Chairman, Water Committee; Hon. John A. White, Chairman of Finance Committee; other members of the Board of Aldermen of Atlanta; and Mr. R. Earl Landers, Comptroller, for their continued support. The Water Works Staff is to be congratulated on their support and leadership of this program. Mr. Howard Peters, a career executive, is Superintendent of the Chattahoochee Water System. ◄◄



*Setting the raw-water pumps below the river level places a positive head on the pumps at all times.*

# Fight Snow 4 Ways

## These tractor-shovels work for you the whole year through

**BLOWER TYPE PLOWS** are efficient self-powered units that interchange quickly with the bucket — can blow far to the right or left or deliver directly into trucks.

**"V" TYPE PLOWS** combined with powerful 4-wheel traction and hydraulic lift of the "PAYLOADER" can break through heavy drifts — are also available with wing attachment.

**ONE-WAY PLOWS** and reversible side-cast plows are also available for most "PAYLOADER" models. One-way plows are also available with wing attachment.

**SNOW LOADING BUCKETS** especially large for snow work — or regular buckets — can always be used to load snow from parking lots, street windrows or street corners.

When you invest in a "PAYLOADER", you get *more* than a tractor-shovel . . . you have a potential *fleet* of construction and maintenance equipment to handle, not only the regular tractor-shovel jobs, but scores of specialized jobs normally requiring single-purpose machines.

### Widest Range of Tools

A "PAYLOADER" can be equipped with a greater variety of proven attachments than any other tractor-shovel, each tool specifically and exclusively engineered for the "PAYLOADER" applications. They are easily and quickly installed and many permit the use of the bucket in conjunction with the attachment. Only a "PAYLOADER" offers you this maximum versatility, productivity and economy to reduce your equipment investment.

### For the Snow Belt

For snow fighting alone, there are several attachments from which to choose: regular or special-large snow buckets; self-powered rotary plow; powerful drift-busting "V" plow; "one-way" and reversible blade plows.

### Four-in-One Bucket

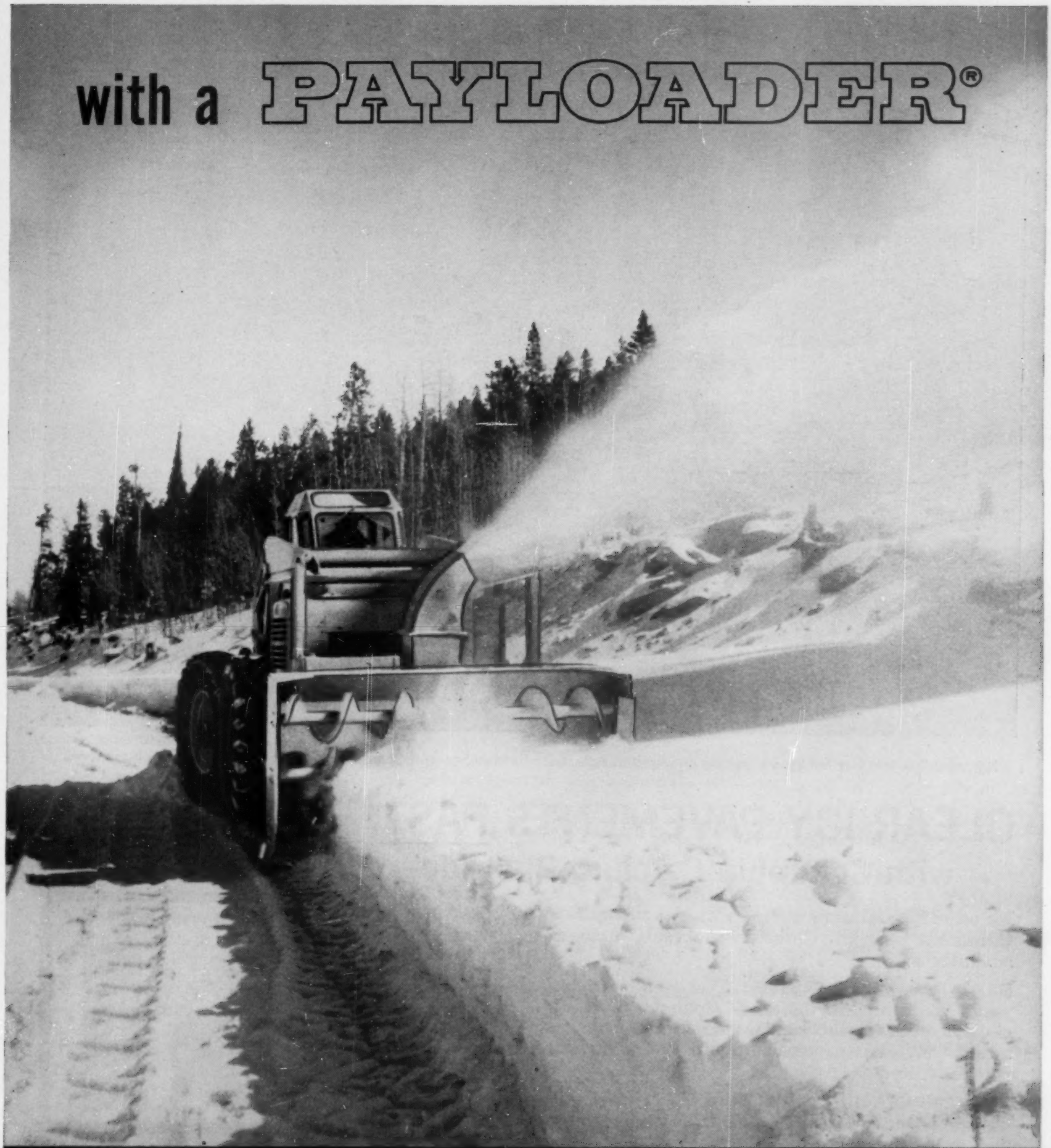
A "PAYLOADER" equipped with a patented Drott 4-in-1 bucket has no end of uses for public works, because it can function as a shovel, bulldozer, clamshell or self-loading scraper. This special bucket is available only on a "PAYLOADER" in the rubber-tired field.

### Other Useful Attachments

Some of the many other "PAYLOADER" attachments of special interest to public works departments include the back-hoe, the pick-up sweeper, a high-capacity leaf loader, a blacktop spreader, a side-boom, and a vibratory compactor.

### Wide Range of Sizes

Proven "PAYLOADER" tractor-shovels are available in a wide range of sizes to fit the requirements of any public works department, and they are backed by the largest, most experienced network of distributors in the industry.



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710 Sunnyside Ave., Libertyville, Ill.

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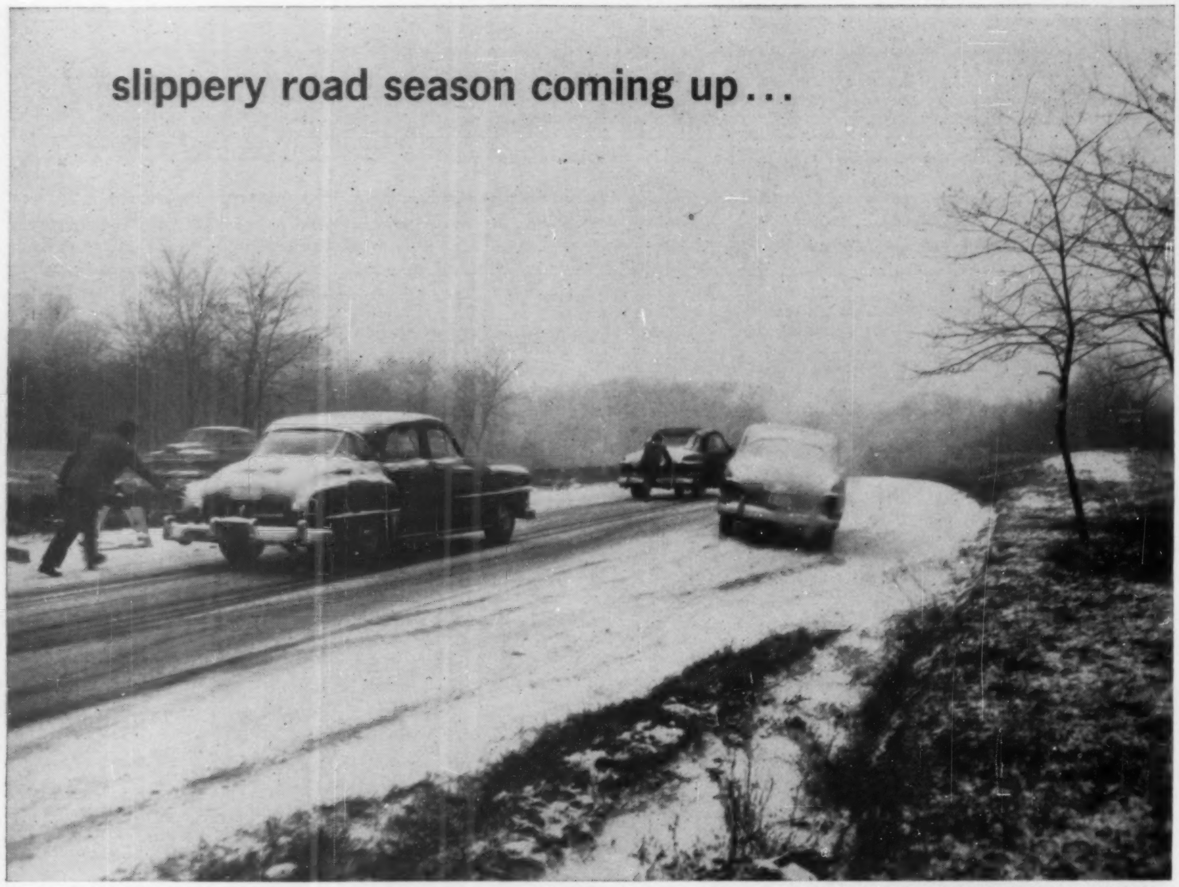


Photo courtesy Bureau of Public Roads, Dept. of Commerce

Icy roads like the one above are quickly changed to safe, bare pavements with Columbia Calcium Chloride–rock salt mixtures.

# CLEAR ICY PAVEMENTS FAST

## with Columbia Calcium Chloride-rock salt mixtures

No other ice and snow control material offers these Columbia Calcium Chloride–rock salt mixture advantages:

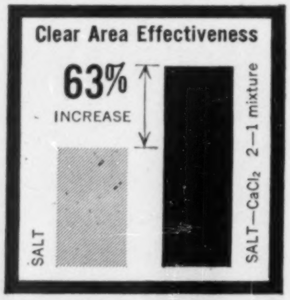
**BARE PAVEMENT FASTER:** Test results (right) prove the ice melting action of Columbia Calcium Chloride–rock salt mixtures. And, mixtures give you a uniformly clear pavement, free from treacherous patches of ice.

**ALL-TEMPERATURE EFFECTIVENESS:** Columbia Calcium Chloride–rock salt mixtures assure quick melt at *all* temperatures—from freezing to sub-zero.

**SAVE TIME, MONEY:** Columbia Calcium Chloride and rock salt mix easily, can be stored indefinitely, ready for instant use with minimum shelter required. Bulk purchase and storage help stretch maintenance budgets.

Make your winter road plans now in time to get your Columbia Calcium Chloride and rock salt order delivered, mixed and located before winter's first snow fall arrives.

For more information write to our District Sales Office nearest you or to our Pittsburgh Address.



Clear pavement area two hours after application of calcium chloride–rock salt mixtures is 63% greater than salt alone in 25-30° temperature range.
(Based on field studies in Michigan sponsored by the Calcium Chloride Institute)

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The sturdy growth of these trees in downtown Englewood is encouraging similar planting elsewhere.

A three-inch-caliper tree about to be placed in a five-by-five pit in downtown Englewood.

# Of Course You Can Plant Trees Downtown

## Test planting in the Englewood, N. J., business district shows costs, tree selection, planting procedure—and pitfalls

By **EDWARD F. BRARMANN, Jr.**, Superintendent
Department of Parks and Shade Trees

The planting of trees in the business area in Englewood had its origin early in 1956. Prior to approval of the project by the Mayor and Council, our department conducted a survey to determine the number of trees, the varieties or species, planting problems and estimated cost of planting the entire main business area. An overall estimate of $200 a tree seemed probable. This included concrete removal, excavating, new soil, trees of approximately 3-inch caliper, planting, staking, wrapping, guying, and furnishing and installing paving material around the base of the tree. To hold costs down, we expected to use departmental personnel and equipment whenever possible.

The survey also pointed up the possibilities of some unusual problems in relation to utility installation interference, traffic, material selection and difficult maintenance. The project appeared commendable from the standpoint of aesthetics but the attendant problems made it questionable.

Consequently, we decided on a "test planting" to determine public reaction to trees in the businesss area and the possibility of interested merchants offering financial cooperation. Initially, merchants were not too impressed. "Too many leaves," "Can't see our signs," "Make the street dirty," "Just took the old ones down" (35 years ago) were some of the comments. None offered financial assistance. Despite this, we went ahead.

The most difficult phase was the selection of a species and variety of tree suitable for the planting location. Sycamore, linden, American elm, thornless honeylocust, and Ginkgo were not wholly desirable or practical for various reasons. Due to planting site characteristics, the use of a columnar or upright variety was mandatory. Our recommendations, tempered by availability, were as follows:

1. **Augustine ascending elms**
2. **Pyramidal Norway maple**
3. **Pin oak or willow oak**

A number of Augustine ascending elms, advertised as disease resistant, had been growing for years on a nearby private estate and appeared to be doing well. They had fine root systems and large leathery persistent leaves. For these demonstrated qualities, we selected this tree for the trial planting.

### Planning Needed

Advance planning in such planting projects is of the utmost importance. There must be coordination among city departments and cooperation and assistance from utility companies. Our initial step, of course, was to locate our tree sites in relation to spacing, parking meters, signal lights, driveways, drain lines and visible utilities such as fire hydrants, meter pits, and curb boxes. The next was to send letters to Public Service Electric & Gas, Bell Telephone, the water company and sewer department advising them of our intention to plant trees at locations in accordance with an accompanying sketch and specifications.

The planting site was an average business area adorned with the

*(Continued on page 220)*

(Continued from page 219)

usual lighting standards, traffic signal light fixtures, a theatre marquee, a limited number of overhanging signs, and the offspring of the horseless carriage age, parking meters. For the most part we have angular parking which places our meters about ten feet apart. Our sidewalk areas are 16 feet from curb to store front. The buildings in the area varied from one to five stories. The variation in building structures and sizes had considerable effect on our decision to select upright growing trees.

We picked the Englewood Municipal Building, located at a major intersection in the center of the business area, for the initial planting of five trees of 3-inch to 3½-inch diameter. These trees were shipped to us from Chicago bare-rooted, were heeled in for four days and then planted. A local nursery completed the excavating, soil replacement, and planting requirements to and including furnishing and installing paving blocks. The total cost of our "test planting" was $815 or $163 per tree.

Where sidewalk has been laid in sections, a jack-hammer is all that is required to remove the concrete. The first five trees were set in areas in which a concrete saw was required. When such equipment is needed, costs increase possibly another $10 per tree.

Curbs in this area are granite. At the rear of each curb was found a substantial mass of concrete apparently placed as a backing. Although this probably would not have interfered with the tree, it was removed wherever it was possible.

Care had to be taken as unidentified conduit was found at this level and larger conduit was found in the concrete at the bottom of the curb. All the holes were hand dug, 3½ to 4 feet depending on soil conditions, the dirt being thrown in the gutter and then machine-loaded on trucks. A back hoe can be used but is not recommended. Once the concrete sidewalk is removed, excavating should be accomplished with shovel and cautious picking to avoid damaging drain pipes, conduits and sewer pipes.

Each pit was barricaded with 2x4 framework pending completion of excavation of holes and return of special backfill. The backfill

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precision CONTROLS BEST

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Off-Street Parking
PAYS OFF!

Western Parking Gate in combination with hourly rated "Parkontrol" Time-Dater-Imprinter Equipment.

Over 1400 Western Parking Gates in more than 175 cities have proved that off-street parking can be handled automatically at a substantial profit. Positive control—Western Parking Gates are electrically operated to give complete flexibility, dependability and ease of operation in any city parking facility.

Key, electro-card, coin and token-operated gates, separately or in combination, provide the answer to municipal lots operated on a flat fee arrangement.

"Parkontrol" Time-Dater-Imprinter Equipment available for operations involving hourly rate and validation parking. Low labor costs, low initial equipment cost and simple installation make them a wise investment for any city.

EXCLUSIVE FEATURES—Western, builder of more than 12,000 railroad and highway crossing gates, has engineered the "Lot Full" sign, electric opening and closing treadles, double key controls for night and day parking, electro-cards with period changes, push-button remote controls and automatic counters.

See our eight-page section in Municipal Index 1960

*Write for FREE copy of our 40-page manual "How to Lay Out a Parking Lot."*

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work boat POWER!

Got a tough boating job? Here's the motor that takes it in stride—Evinrude's 1960 Big Twin! 40 horsepower at 4500 rpm. Big-load power that loves to work. It's as easy to pull over and start as most motors half its size—and thermostatic temperature control keeps it running at peak efficiency in any weather, on any water. Choice of props to fit boat and work. For constant, rugged duty, there's no finer outboard power—or more economical buy—than the stout-hearted Big Twin.

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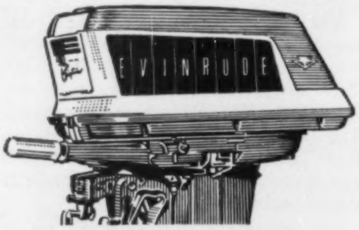
**EVINRUDE**
FIRST IN OUTBOARDS



composed of top-soil, leaf mold, humus and fertilizer had been prepared beforehand for use in the tree pits. This was dumped into the hole or as close to the hole as possible.

Hand shoveling backfill into the pits became necessary as the barricades interfered with dumping. This could have been accomplished by machine, but traffic hazards made the use of a tractor questionable, so workmen tamped the backfill into the pits. Nevertheless, within a week, after a heavy rain storm, the tops of the pits needed additional soil. All of the wooden barricades eventually took on a somewhat decrepit appearance as the result of careless parkers ramming them. We recommend that the bottom board of the barricade be omitted on the curb side to avoid such damage.

## Sub-Surface Irrigation

The 4x4 corner posts of the barricades are carefully removed to leave a hole approximately 4x4 inches by three feet deep. These holes are filled with ⅝-inch stone and facilitate the passage of water to lower soil surfaces for sub-surface irrigation. The trees are planted so that their normal nursery grade level will be four inches below sidewalk surface. The top-soil is leveled off at this grade.

In the initial project we used a paving brick, 3½x4x8½ inches, on top of the soil to provide a walking surface at sidewalk grade. It is fairly heavy and does not shift too readily. A pit (5x5 feet) requires about 106 blocks. Blocks are laid about ½ inch apart, those near the outer edge about ½ inch above the surface of the sidewalk, while those nearer the tree are placed higher to allow settling.

Due to almost constant settling, hazardous and unsightly conditions developed requiring frequent re-leveling of paving blocks. Using these blocks proved costly and, more important, a serious drain on labor forces. We are presently experimenting with a different type of paving block. By using both white concrete blocks and gray cinder blocks 18 inches long in combinations of 8- 10- and 12-inch widths, a variety of color and pattern schemes can be obtained. A total of 20 of the larger blocks are used, with 12 cinder bricks forming the inside collar. Total cost of paving materials:

| | |
|---|---|
| **Concrete Blocks** | **$3.68** |
| **Cinder Blocks** | **1.12** |
| **Cinder Bricks** | **.60** |
| | **$5.40** |

Installation time of paving area was reduced by better than one-half by the use of larger blocks.

In some places weeds grew almost as successfully as the trees. Weeding was only a small problem, but was performed frequently to maintain a satisfactory appearance.

A five-foot length of 1x2-inch turkey wire attached to two tree posts was installed as a protective device around the trees. Shortly after the original five trees were planted, it was found that an attractive litter basket with a tree growing in the middle of it had been unwittingly developed. In addition to being unsightly this represented a potential fire hazard to the tree. This condition was easily corrected by raising the protective wires to permit a gap between the bottom of the wire and the paved

*(Continued on page 223)*

HOW WILL THE MAJORITY VOTE NOVEMBER 8th?

HERE'S HOW:

On

AUTOMATIC VOTING MACHINES

More than 50% of all votes will be cast this way... accurately, quickly and secretly.

AUTOMATIC VOTING MACHINE DIVISION
ROCKWELL MANUFACTURING COMPANY
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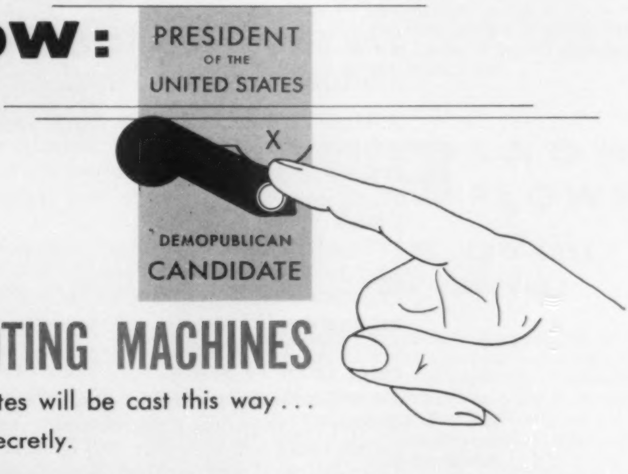

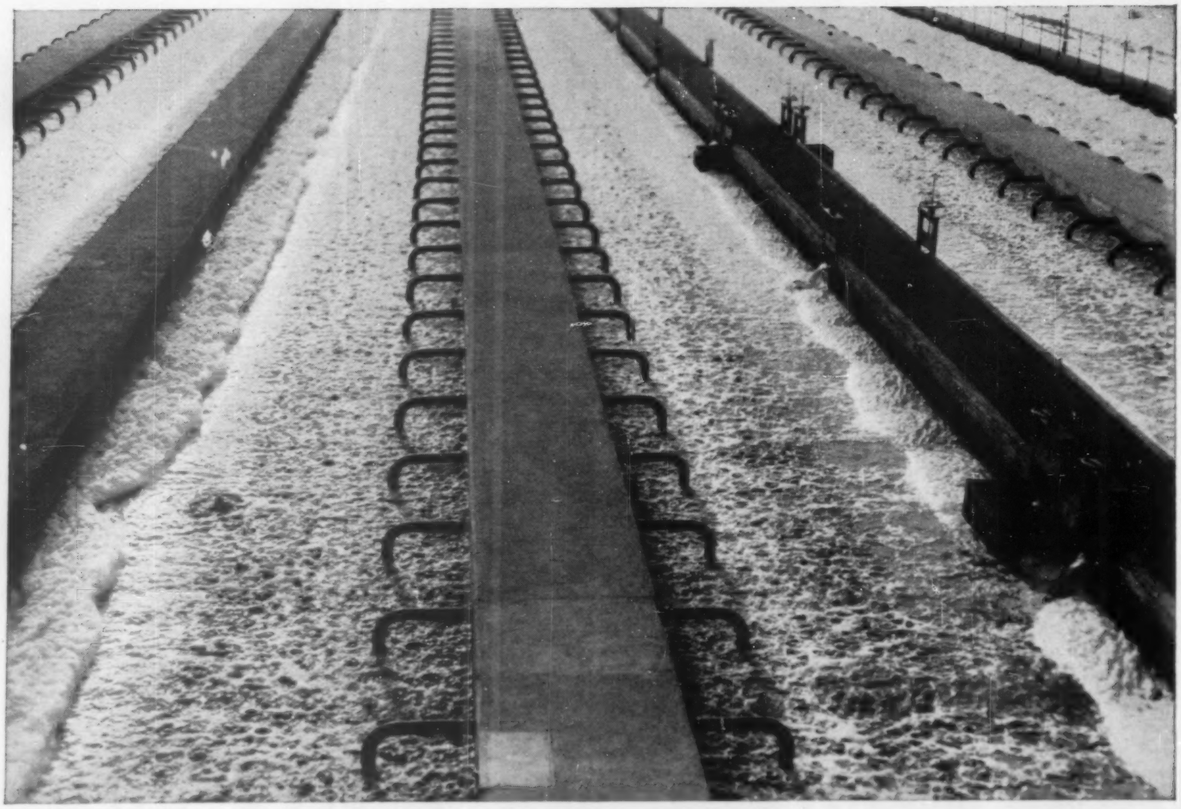

# New! Dorr-Oliver

# INKA AERATION SYSTEM

*The first truly different approach to activated sludge aeration in the last 30 years*

A high turbulence bubble zone provided by corrosion proof, clog-resistant aeration grids of radically new design now makes possible greatly increased oxygen absorption rates for more efficient biological treatment of sewage and industrial wastes by the activated sludge process.

The D-O INKA system is an exclusive development, based on a new principle of operation. It not only offers higher oxygenation capacities but also high circulating velocities that promote optimum mixing conditions. Simple, low pressure fans are used rather than conventional blowers. No air filters are required. Oxygen transfer rates from 10 ppm to 150 ppm per hour and higher are feasible. Power costs range from 0.20 Kwh to 0.45 Kwh per pound of oxygen dissolved, depending on transfer rates. Construction and maintenance costs are low. For full details, write for Bulletin No. 7317 to Dorr-Oliver Incorporated, Stamford, Connecticut.

**At the WPCF Convention** . . . Visit D-O booth #219-221
to see an operating demonstration of this new System.

DORR-OLIVER
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT

*(Continued from page 221)*

area. As a result, any papers dropped inside the wire were not trapped at the base.

Eventually we received three offers of financial assistance from business establishments, one an unsolicited offer from the board of directors of one of our banks. They paid the major costs for placement of three trees adjacent to their building.

In spite of our many well-laid plans, frustration sometimes manifested itself in peculiar fashion. In preparing the 1959 planting, four pits were marked with a large red dot indicating they were to be left for last-minute digging. Each year the merchants sponsor a Christmas decoration suspended on poles and wires across the main street. When it came time to dig the hole, we found that one of these decoration standards had been placed directly on the square to be excavated for one of our trees.

### Bus Stops

The advisability of planting trees adjacent to bus stops was questioned but it was felt the location should not be eliminated without experimenting with at least one location. No appreciable interference was found.

The planting of trees in business areas can present many problems and can be a costly project. Maintenance, from a standpoint of watering, feeding, and spraying, is better accomplished at night. Pruning of these trees will possibly precipitate the necessity for some type of aerial lift. Spraying with our mist blower is impossible due to proximity of store windows. We will either have to contract this to a company possessing a hydraulic sprayer or secure our own.

Too often we prefer to cast aside an undertaking of this type because of the obvious problems and inconveniences. In spite of the many problems, the eventual favorable reaction by the public, the favorable comments of the shopkeepers, and the general improvement in appearance of the business area have all justified the efforts expended. ◄◄

Flink Spreaders do the Job!

WHATEVER... The Spread—Chlorides or Chips
WHOEVER... The User—Government or Private
WHEREVER... The Job—Town or Country

ILLINOIS
TOLLWAY

**Flink HDWS4 Completely Hydraulic Tailgate Spreader**—A fleet of these efficient rigs help keep traffic rolling on the Illinois Tollway! Left-rear spinner permits easy 2-3 lane spreads in one pass; saves material. Hydraulically operated, cab-controlled, 2-speed auger permits instant change from abrasives to straight rock salt. Volume controlled by hydraulically operated feedgate.

**Flink LMC Hopper Spreader**—Handles salt, cinders and sand for heavy-duty ice control. Pea gravel and chips for seal coating. Choice of PTO, hydraulic or gasoline engine drive, cab-controlled. Uses the only power transmission of its kind in the field. No worm gears, no "out-of-straight" shafts of U-joints. Differential equalized drive.

PASS WITH CAUTION

**Flink HD42 Hydraulic Drive Tailgate Spreader**—Consistently picked by smaller communities that need *both* faster ice control and seal coating in the *same* low-cost rig! Self-feeding. Handles all Chlorides and abrasives. Spreads from width of truck to width of street, thick or thin. Replaces tailgate on present trucks. Trips for dumping just as original tailgate did.

BAKER Flink SNOW PLOWS

FOR FAST, LOW-COST SNOW REMOVAL!

Reversible or one-way plows for 1½ to 5 ton trucks and up. Sectional or one-piece, full-length cutting edge trip. Exclusive blade-hinge weldments in place of hinges cut maintenance. Full 3¼" wear on a 6" cutting edge. Operating position adjustable 65° or 75° from horizontal.

*Our distributor-field engineers will gladly furnish you with full particulars; just write:*

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5509 North Vermillion Street

Charles Guard *(left), City Engineer, and* George Williams *(right), Power Plant Superintendent of Lebanon, Ohio...and* G.L. ("Slim") Collar, *Service Engineer for The Cooper-Bessemer Corporation discuss the installation...*

# How Lebanon is powering-up to keep costs down with Cooper-Bessemer engines

Here you see the new Cooper-Bessemer LSV-16 gas-diesel engine being moved into the power plant of Lebanon, Ohio to double its present capacity. This is the second LSV to be installed here. After three years' experience with a smaller unit, Lebanon Trustees of Public Affairs know how economical this turbocharged Cooper-Bessemer engine really is!

The new 3200 kw unit, like its 2000 kw C-B companion, will deliver *30% more power* per fuel dollar than units of conventional design in the Lebanon plant!

Both of these LSV engines can operate on either fuel oil or natural gas.

Cooper-Bessemer is prime contractor for the entire new 3200 kw facilities on a turn key basis. It will include C-B En-Tronic Controls.

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# How We Extend Water Mains

## . . . to undeveloped areas, both within the city limits and outside them, and assess fair charges for them

By **GEORGE WHITEN**
City Manager
Gainesville, Ga.

The responsibility of extending water mains to undeveloped areas both within the city limits and outside is one that requires some diplomacy. The city itself needs to have these new areas served by water and sewer lines, to insure good sanitation and eliminate possible health hazards. The city welcomes new subdivisions, particularly when they are designed to wholesome standards. However, there is no need for the city to subsidize these new subdivisions. Each should be willing to assume its fair share of financial responsibility.

Gainesville willingly extends water service to developed or undeveloped properties either within or outside the city limits. However, the city insists that they comply with fair and reasonable standards.

We insist that water lines for these new areas be placed in public rights-of-way or public easements, certified as such either to the city or to Hall County. If the line is to be placed in a street right-of-way we feel justified in insisting that the street be at a grade which we can reasonably feel is final. We want to eliminate the costly aggravation of seeing a main placed in a street and then moved a short time later.

**Before water mains go to a new area in or outside Gainesville, the city insists that the area served meet good planning standards.**

If a subdivision outside the city limits applies for water service we insist that it comply with provisions of county subdivision regulations if such exist. If county subdivision regulations are not in effect the subdivision must comply with city subdivision regulations. We feel this to be a reasonable requirement and one which is consistent with our policy toward in-city subdivisions. Also, we feel that this requirement is a protection against the day that outside areas will be annexed into the city.

We rightfully will not provide water service to a subdivision with a substandard design that could cause serious health and sanitation problems. When such a condition exists we insist that the design be altered to reduce the likelihood of such problems. This alteration must be approved by the Health Department.

### Installation of Mains

Mains that the subdivision plans to install must be designed to standards that meet the approval of our city engineer. This covers such factors as the maximum length of line to be installed: possible future extensions of a proposed line; reasonable estimates of the maximum demand that will be placed on a line; and the present or future part that the line will play in a fire-protection program.

All water mains are required to be a part of the city water system and therefore must be installed by the city forces in accordance with our specifications. We have a Model 95 Cleveland Trencher to open the ditch. It will cut 16 inches wide to a depth of 5½ feet. A pair of Ford F-900 trucks with five-ton Gar Wood cranes transport and place the pipe and fittings. A D-2 Caterpillar tractor backfills and compacts the trench.

When we extend our water mains to a subdivision, we specify a finan-

*(Continued on page 226)*

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*(Continued from page 225)*

cial agreement. For projects in the city, we will spend no more than $200 per residential structure to be served for this water-main extension. Since we have higher water rates for out-of-city customers we will spend up to $350 per residential structure for these customers. If a residential structure contains two or more dwelling units, each unit which has a separate water service tap is counted as a separate residential structure.

When we extend our water mains to serve commercial structures, the city's share of the cost shall not exceed an amount equal to ten times the estimated net annual earnings from the sale of water to the structure to be served.

## Non-Refundable

Whenever the estimated cost of water service extension is greater than the amount that the city can spend, then we ask the petitioners to pay the difference. We require this payment in advance, along with other fees. Neither this payment nor the other fees are subject to return.

Occasionally a petitioner asks that a water main be extended to undeveloped lots. In general, we participate in this in the same manner. We have a somewhat more detailed procedure for calculating the amount of the advance deposit and have a definite procedure for refunding:

- ***Number of lots*—we require the petitioner to certify the exact number of lots for which service is being sought.**
- ***Cost calculated* — Our engineers then calculate the cost of the main extension, and convert this into cost per certified lot.**
- ***Advance payment*—We then require the petitioner to deposit with the city an amount equal to the total estimated cost. If there is a difference between the actual cost of the project and the amount the city can legally spend on the work, were the lots occupied by houses, then that portion of the deposit is placed in a separate, non-returnable fund.**
- ***Refund program*—Each year, for a period of five years, the city refunds to the petitioner an amount equal to the cost per certified lot during that particular year. We, of course, provide that such refunds shall not exceed $200 per residential customer in the city, or $350 per customer outside the city. We make no refunds after the fifth year, nor do we refund more than the petitioner deposits.**

If a project involves both existing structures and undeveloped lots, we combine the two methods to arrange financing costs.

## Fund Established

To insure that work of this nature is on a self-sustaining basis, we have established an Extension, Renewal, and Maintenance Fund. This fund derives its income from such sources as the Gainesville City Commission shall establish in its annual budget.

We do not undertake extension, renewal, or maintenance work unless we have sufficient unencumbered balance in the fund to finance the project. If we do not have funds, then we are forced to ask the petitioner to pay the full cost on a non-refundable basis.

The commission has established a policy measure that sets priorities for projects of this type. The priority has been established on the following basis:

- ***First*—to water service extensions**

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**in which the petitioner has agreed to pay the full cost on a non-refundable basis.**

- ***Second*—to projects necessary to keep the water and sewer systems in good working order.**
- ***Third*—to water line or sewer line renewal projects.**
- ***Fourth*—to applications for service to existing in-city structures. If there are several of these, then priority is assigned on a chronological basis, based on the date of petition.**
- ***Fifth*—to applications to undeveloped in-city lots.**
- ***Sixth*—to applications for service to existing out-of-city structures.**
- ***Seventh*—to applications for service to undeveloped out-of-city lots which are contiguous to an existing water main.**
- ***Eighth*—to applications for service to undeveloped out-of-city lots which are removed from an existing water main.**

This program emphasized the value of having the water system as part of the parent municipal governmental structure, and not as an independent autonomous board of authority, not responsible to anyone except the bondholders. In the way we employ it, our water system is keyed to city-county planning and zoning, to adequate street construction and maintenance, and to fire protection. It provides us with an effective tool that helps Gainesville to grow in a healthy, constructive manner.

We have recently adopted an ordinance, developed from a comprehensive study and recommendations by the city's consulting engineers, Robert & Company, Atlanta, Ga. We will be plad to send a copy to any interested city official. ◄◄

## Seven Out of Ten Have Master Plans

Seven out of ten Texas cities with more than 10,000 population are guiding growth by master plans, according to the Texas Municipal League. By population, the cities using the plans can be grouped as follows:

| Population | Following Master Plan |
|---|---|
| 50,000 and over | 100% |
| 25,000 to 50,000 | 85% |
| 10,000 to 25,000 | 37% |

In the 25,000 to 50,000 group, some of the cities without master plans do presently have such plans in various stages of completion. ◄◄

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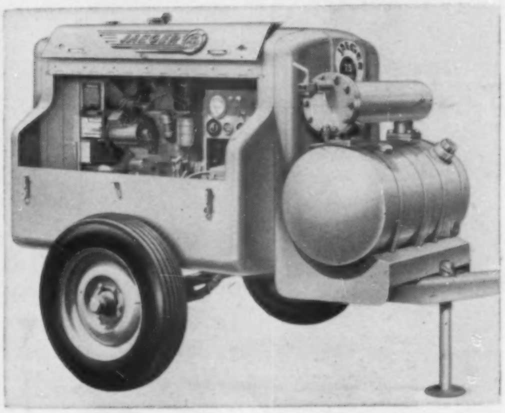

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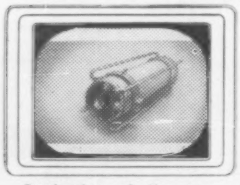

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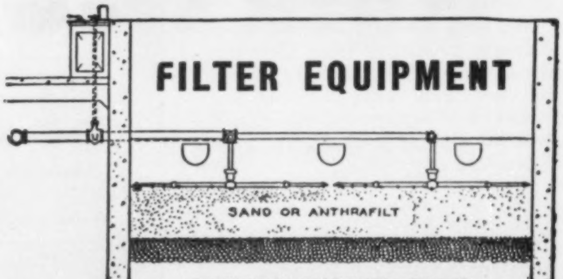

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# ZONING AND PLANNING NOTES

**Edited by NORMAN WILLIAMS, Jr.**

## Nuisance—Golf Tee Next to House

NEW JERSEY. *Sans* v. *Ramsey Golf and Country Club*, 141 Atlantic (2d) 335 (Appellate Division (intermediate) Court, May 12, 1958); affirmed, 149 Atlantic (2d) 599 (Supreme (highest) Court, March 17, 1959).

In this case a country club was established along with a residential development in upper Bergen County, and the club was later separated from the residential development. Subsequently, the third tee of the golf course was rebuilt right next to plaintiffs' home, and there ensued a long series of incidents of conflict between golfers and the plaintiffs, their children, and their dogs. Finally plaintiffs sued successfully to enjoin this tee as a nuisance.

In the intermediate court opinion, the Court held that the location of the tee so near to the house was in fact a nuisance.

> "In the present case we find a *strangely anomalous kind of asserted nuisance*, in that the objectionable condition consists not merely of sights and sounds of what transpires on defendant's property, but in that plaintiffs' reasonably ordinary use of their own property is so offensive to the users of defendant's lands as to engender continual strain, discomfort and friction on both sides of the line. The sounds and activities ordinarily concomitant with everyday living in and about plaintiffs' property are incompatible with the requisite for peace of mind of the nearby golfers about to swing. At the same time, the time and nature of the ordinary activities of golfers at or in the vicinity of the tee were bound, as the evidence indicates actually happened, to wreak havoc with plaintiffs' comfort and reasonable sensibilities as ordinary human beings." (emphasis added)

> "In the present case the proofs leave no room for doubt that either the defendant's third tee or plaintiffs' house is in the wrong place. If it is the tee, the plaintiffs should retain the relief granted them in the Chancery Division. We think this is the case here. The defendant received its property on the basis of an interval plan whose paramount object was the creation of a residential community. The golf course was for the convenience of the dwellers, rather than vice-versa."

This opinion was affirmed in the highest New Jersey court.

## Oil Drilling and Residential Restrictions

CALIFORNIA. *Hirsch* v. *Hancock*, 343 Pacific (2d) 959 (District Court of Appeal (intermediate court), September 21, 1959).

CALIFORNIA. *Friel* v. *County of Los Angeles*, 342 *Pacific* (2d 374 (District Court of Appeal (intermediate court), July 20, 1959).

These two decisions involve the rather familiar problem of residential restrictions in Los Angeles which prohibit the drilling for oil underlying the area.

In the *Hirsch* case, involving restrictive covenants, the Court held that the property in question, one of the few strips fronting on Wilshire Boulevard still zoned for residence, was in fact not suitable for residential use, and therefore refused to enforce the residential restrictions. The chief interest in the opinion derives from the detailed description of the long history of the breakdown of the residential zoning restrictions along Wilshire Boulevard.

In the *Friel* case, the area involved included some 16 blocks developed with substantial middle-class residences (referred to in the opinion as "well-kept medium value homes"); and oil was being drained from underneath the area by wells drilling in an adjacent industrial district at the Union Pacific railroad yards. In this case the Court upheld the validity of the residential zoning restrictions, and stated that drainage of oil from underneath a residential area did not confer an automatic right—regardless of the land use conditions at the surface—on any owner to drill oil in such an area.

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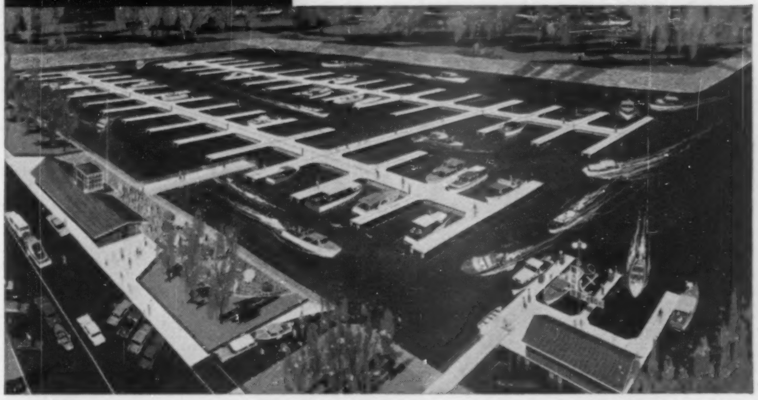

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## LEGAL NOTES AND DECISIONS

**Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel**

### Annexation Valid Despite Conflict in Statutes

In action concerning annexation of town by city where all provisions of earlier statute complied with except for certain ministerial duties, held later act of legislature which repealed authority of city to annex such town did not invalidate annexation. *City of Indianapolis* v. *Wynn*, 157 N.E.2d 828 (Ind., April 22, 1959)

### Housing—Demolition Order Upheld

City Commission did not act arbitrarily or discriminatorily and did not abuse its discretion, in issuing order requiring demolition of building. *Solven* v. *Olson*, 98 N.W.2d 115 (N.D., Aug. 15, 1959)

### Intoxicating Liquor— Permit for Package Store Denied

Even though zoning regulation in effect at time of public hearing on application for permit for package store authorized such use of premises, held when prior to subsequent consideration of application commission adopted zoning amendment prohibiting such use application was properly denied. *McCormick* v. *Stratford Planning & Zoning Com'n.*, 151 A.2d 347 (Conn., May 5, 1959)

### Junk Yards—Fence Requirement Invalid

Held, although ordinance requiring junk yards be arranged so that reasonable inspection to all parts of premises could be had by proper authorities was valid, requirement that solid fence surround junk yard had for its purpose aesthetic one of regulating unsightly things and was unlawful exercise of police power. *People* v. *Dickenson*, 343 P.2d 809 (Cal. Super. Ct., San Diego Cty., June 19, 1959)

### Radar—Evidence Properly Admitted

Where all the rules of evidence were met in introducing in evidence the speed of the automobile as indicated by the radar speed meter, such evidence was properly admitted by the trial court. *Everight* v. *City of Little Rock*, 326 S.W.2d 796 (Ark., Sept. 7, 1959)

### Sidewalks—Blind Man Falls Into Excavation—City Liable

In action by blind pedestrian who fell into excavation in parking strip adjacent to sidewalk where city removed barriers without providing other warning, held city liable. *Fletcher* v. *City of Aberdeen*, 338 P.2d 743 (Wash., April 30, 1959)

### Sidewalks—Invalid to Require Blacktop Be Replaced by Concrete

City restrained from enforcing ordinance requiring property owners to replace bituminous strip between street and sidewalk with concrete. *Johnson* v. *City of Cincinnati*, 159 N.E.2d (Ohio C.P., Hamilton Cty., July 22, 1958)

### Streets—Consent of City Not Necessary for Express Highway

Consent of city to proposed construction of expressway was not required, where no city streets were to be widened. *Piekarski* v. *Smith*, 153 A.2d 587 (Del., July 28, 1959)

### Streets—Injury From Fall— Jury Question

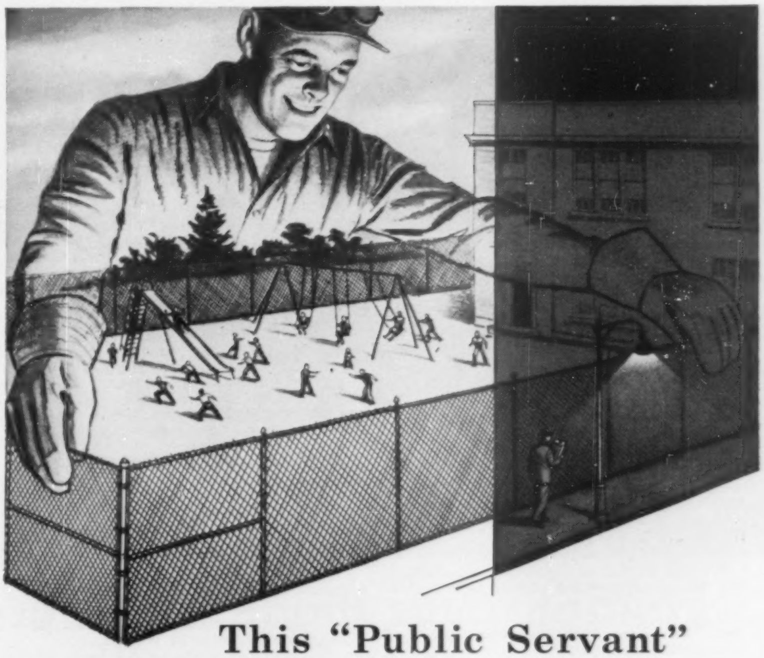
In action for injuries sustained at night by pedestrian walking along unpaved strip parallel to street who caught his foot under metal plate covering drain and fell, held question was one for jury. *Pierce* v. *City of Baltimore*, 151 A.2d 915 (Md., June 10, 1959)

### Tax Exemption— City Realty Leased to Government

Proceeding concerning taxation of realty owned by city and leased to United States as Reserve Training area for armed forces, held there was nothing but public ownership of realty and hence it was tax exempt. *City of Dayton* v. *Haines*, 158 N.E.2d 201 (Ohio, April 29, 1959)

### Tort Liability—Child Burned by Flare Pot—City Liable

In action for injuries sustained by small child burned by flare pot placed by city as warning of excavation in sidewalk, held city liable. *Bronson* v. *Kansas City*, 323 S.W.2d 526 (Mo. App., April 6, 1959)



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# RECENT CITY MANAGER APPOINTMENTS

***L. M. Crow, Jr.***
***Brownsville, Tex.***

***Leon A. Wurl***
***Aspen, Colo.***

***Edward J. Connell***
***Provo, Utah***

***Ernest E. Brashear***
***Seal Beach, Calif.***

***Donald L. Kohler***
***Boyne City, Mich.***

***George R. Volker***
***Turlock, Caliif.***

James D. Arnold has recently been appointed manager of Cameron, Mo., succeeding Harold J. Hilliard, Sr. Mr. Arnold has been assistant to the county manager at Charleston, S. C.

Douglas W. Ayres, employed by Public Administrative Service, Chicago, Ill., was recently appointed as manager of Melbourne, Fla. succeeding Tevis Huguely. Mr. Ayres has previously served as town clerk and general assistant to the manager of Salem Va.

Alexander Baptist, manager of Hawkesbury, Ontario, Canada, was recently appointed manager of Pointe Claire, Que., Canada, succeeding Rene Labrosse.

George C. Benway, of Old Saybrook, Conn., has been appointed manager of Claremont, N. H., succeeding Roy G. A. Petterson.

Ernest E. Brashear, public relations officer of Burbank, Calif., was recently appointed to the post of manager of Seal Beach, Calif.

Winton S. Burne, assistant administrative officer of Norwalk, Calif., was recently appointed as the first manager of Mirada Hills, Calif. Mr. Burne has previously served as field consultant for Los Angeles County, Calif.

Edward L. Carlsen, acting manager of Ogden, Utah, has been appointed manager of that city succeeding Walter R. L. Taylor. Mr. Carlsen formerly served in the public works department and as auditor and finance director for that city.

Gilbert D. Chavenelle, manager of Haverhill, Mass., has been appointed manager of Dubuque, Iowa, succeeding Laverne J. Shiltz who resigned to enter private business. Mr. Chavenelle was formerly manager of Santa Paula, Calif.

Edward J. Connell, chief administrative officer of Rocky River, Ohio, was recently appointed as the manager of Provo, Utah, succeeding E. Earl Udall, now manager of Merced, Calif. Mr. Connell previously served as administrative assistant of Cleveland Heights, Ohio.

L. M. Crow, Jr., manager of Grand Prairie, Tex., was recently appointed manager of Brownsville, Tex., succeeding Gene Gatlin. Mr. Crow previously served as manager of Harlingen, Tex.

August A. DeBard, Jr., manager of Halifax, N. S., Canada, for eight years, has recently been appointed manager of Peoria, Ill., succeeding Herbert D. Fritz. Mr. DeBard formerly was finance director of Milford, Conn.

John Phillip Deppen, previously administrative assistant in Plymouth, Mich., has been appointed manager of Vassar, Mich., succeeding William F. Wilson.

Gordon Dillon, manager of Ipswich, Mass., has recently been appointed manager of North Miami Beach, Fla., succeeding Allen L. Wilcox. Mr. Dillon was formerly manager of Claremont, N. H., and North Adams, Mass.

Henry Dunn, Jr., manager of Ocean Ridge, Fla., has been appointed manager of Royal Palm Beach, Fla. Mr. Dunn was formerly manager of Mt. Holly, N. C.

Milton R. Farrell, county administrator of Colusa Co., Calif., has been appointed manager of Rosemead, Calif., succeeding William Woollett, Jr., who is now manager of Temple City, Calif.

David E. Firestone, manager of Sylvan Lake, Mich., has been appointed manager of Troy, Mich., succeeding Dave Husse. Mr. Firestone was previously manager of Imlay City, Mich.

Harry M. Fleming, who has been in the hotel management field, has been appointed manager of Kansas City, Mo. He was for many years chairman of the governing board of the Jackson Co., Mich.

Allister Hayward, formerly acting city manager of Cheboygan, Mich., has been named manager of that city.

Anders O. Hustvedt, public works director of Flushing, Mich., has been appointed manager of Otsego, Mich., succeeding Donald R. Foster.

Donald L. Kohler, assistant city manager and budget officer of Grand Haven, Mich., was recently appointed the first manager of Boyne City, Mich. Mr. Kohler served as administrative assistant and personnel director of Eugene, Ore.

*(Continued on page 234)*

***Norman E. Tufford***
***Greenville, Ill.***

***Alexander Baptist***
***Pointe Claire, Que.***

***Farrell A. Stewart***
***Concord, Calif.***

***Douglas W. Ayres***
***Melbourne, Fla.***

***Winton S. Burne***
***Mirada Hills, Calif.***

***Truman O. Moore***
***Littleton, Colo.***

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*(Continued from page 232)*

C. B. Kinnison, manager of Reno, Nev., is the new manager of Washoe County, Nev., succeeding Allen Carter. Mr. Kinnison was formerly manager of Sparks, Nev., and assistant to the manager of Grand Island, Neb.

Leonard L. Kopp, administrative assistant of Phoenix, Ariz., has been appointed manager of Mound, Minn., succeeding Vernon Boxell, who is now manager of Fairfield, Iowa.

Chester A. Kunz has been appointed manager of Seward, Alaska, succeeding William L. Bordwell. Mr. Kunz, who is a retired admiral, was previously administrative assistant in the public works department of Sunnyvale, Calif.

Paul L. McCauley, manager of Clark's Summit, Pa., has been appointed manager of Lehighton, Pa., succeeding Walter H. Niehoff. Mr. McCauley was previously administrative assistant in Washtenaw County, Mich.

Truman O. Moore, assistant manager of Littleton, Colo., was recently appointed manager of that city, succeeding Carl D. Bryan. Mr. Moore is a retired commander in the U. S. Navy.

Joe E. Parris, former manager of Anadarko and Waurika, Okla., has been appointed manager of Norman, Okla., succeeding Grover L. Morris.

George Pellack, acting city manager of Fair Lawn, N. J., has recently been appointed manager of that city succeeding W. T. Williamson. Mr. Pellack was formerly treasurer of Fair Lawn.

Robert L. Price has been appointed manager of Oak Lawn, Ill., succeeding Camille D. Andre, who is now manager of St. Louis Park, Minn. Mr. Price was previously manager of Ottumwa, Ia., Marinette, Wis., Dover, N. H., Houlton, Me., and Blairsville, Pa.

Ralph A. Sayers, formerly commissioner and mayor of Columbus, Ga., has been appointed manager of that city succeeding J. A. Willman. Mr. Sayers was previously in private business in Columbus.

Jerry M. Smith, assistant manager of Lawrence, Kan., has recently been appointed manager of Parsons, Kan., succeeding Bernard P. Budd.

F. A. Stewart, director of public works of Concord, Calif., was recently appointed manager of that city, succeeding R. E. Doran, Jr., now manager of Hayward, Calif.

Norman E. Tufford, manager of Holly, Mich., was recently appointed manager of Greenville, Ill., succeeding A. S. Johnson.

George R. Volker, planning director of Turlock, Calif., was recently appointed as manager of that city, succeeding Lawrence W. O'Rourke.

Percival H. Wardwell, manager of Ogunquit, Me., has been appointed manager of Old Orchard Beach, Me. Mr. Wardwell was formerly manager of Conway, N. H.

William E. Wolff, manager of Cleveland, Tex., has been appointed manager of El Campo, Tex., succeeding L. J. Smitzes, now manager of Boynton Beach, Fla.

William Woollett, Jr., manager of Rosemead, Calif., has been appointed the first manager of the newly incorporated city of Temple City, Calif.

Leon A. Wurl, director of public works of Westminster, Colo., was appointed as the first administrator of Aspen, Colo.

Fred J. Young, previously manager of La Grande, Ore., has been appointed manager of Baker, Ore., succeeding Paul R. Revis. Mr. Young was formerly mayor of Baker.

Orin F. Nolting
*Executive Director*
*International City Managers' Association*

## Readers' Digest Boosts Street Lighting

*Readers' Digest* will award a $500 first prize and five $100 runner-up prizes to the local clubs of the General Federation of Women's Clubs which initiate the best community programs to improve street and highway lighting in the next year. Mrs. Omar Ranney announced the awards at the 69th annual meeting of the Federation in Washington, D. C. ◄◄

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# CONVENTIONS — WHEN AND WHERE

Conventions listed this month for the first time are indicated by an asterisk (*)

**Sept. 11-15—Long Beach, Calif.**
American Institute of Park Executives. Annual Convention (Lafayette Hotel). Exec. Sec., Alfred B. LaGasse, Oglebay Park, Wheeling, W. Va.

**Sept. 11-16—Pittsburgh, Pa.**
Illuminating Engineering Society. National Technical Conference (Penn-Sheraton Hotel). Managing Dir., A. D. Hinckley, 1860 Broadway, New York 23, N. Y.

**Sept. 12-14—Knoxville, Tenn.**
American Water Works Assoc.—Kentucky-Tenn. Section. Annual Meeting (Andrew Jackson Hotel). Sec.-Treas., Harold F. Mount, 5400 Preston Hwy., Louisville, Ky.

**Sept. 12-14—Knoxville, Tenn.**
Kentucky-Tennessee Industrial Wastes and Sewage Assoc. Annual Meeting (Andrew Jackson Hotel). Sec.-Treas., S. Leary Jones, 602 Cordell Hull Building, Nashville, Tenn.

**Sept. 12-15—Rochester, N. Y.**
International Association of Fire Chiefs. Annual Meeting (Manger Hotel). Dir., B. Richter Townsend, 232 Madison Ave., New York 16, N. Y.

**Sept. 12-16—Chicago, Ill.**
Institute of Traffic Engineers. Annual Meeting (Edgewater Beach Hotel). Exec. Sec., David M. Baldwin, 2029 K St., N. W., Washington 6, D. C.

**Sept. 14-16—St. Joseph, Mo.**
Missouri Municipal League. Annual Convention (Robidoux Hotel). Exec. Dir., Bruce J. Carl, Guitar Bldg., Columbia, Missouri.

**Sept. 14-16—Saranac Inn, N. Y.**
American Water Works Assoc.—N. Y. Section. Annual Meeting (Saranac Inn). Sec.-Treas., Kimball Blanchard, c/o Neptune Meter Co., 22-22 Jackson Ave., Long Island City, N. Y.

**Sept. 14-16—Virginia Beach, Va.**
American Water Works Assoc.—Virginia Section. Annual Meeting (Cavalier Hotel). Sec., E. H. Ruehl, c/o R. Stuart Royer & Assoc., 15 W. Cary St., Richmond, Va.

**Sept. 15-17—Salt Lake City, Utah**
Utah Municipal League. Annual Meeting (Newhouse Hotel). Exec. Dir., Tom McCoy, Newhouse Hotel, Salt Lake City, Utah.

**Sept. 18-21—York, Pa.**
Pennsylvania League of Cities. Annual Meeting (Yorktowne Hotel). Exec. Dir., J. N. O'Neil, 506 State St. Bldg., Harrisburgh, Pa.

**Sept. 18-20—Wichita, Kansas**
League of Kansas Municipalities. Annual Convention (Hotel Broadview). Exec. Dir., E. A. Mosher, 112 West 7th, Topeka, Kansas.

**Sept. 18-20—Roanoke, Va.**
League of Virginia Municipalities. Annual Meeting (Roanoke Hotel). Exec. Sec., Harold I. Baumes, 905 Travelers Bldg., Richmond 19, Virginia.

**Sept. 18-21—Denver, Colo.**
International Assoc. of Assessing Officers. Annual Meeting (Hilton Hotel). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Ill.

**Sept. 18-22—Montreal, Canada**
New England Water Works Assoc. Annual Meeting (Queen Elizabeth Hotel). Sec., Joseph C. Knox, 73 Tremont Street, Boston 8, Mass.

**Sept. 19-21—Atlanta, Ga.**
National Conference for County Engineers and Officials. Annual Meeting (Atlanta Biltmore Hotel.) Dir., Ben F. Ostergren, County Division, ARBA, 600 World Center Bldg., Washington 6, D. C.

**Sept. 19-22—New York, N. Y.**
International Municipal Signal Assoc. Annual Conference (Hotel Astor). Sec., Irvin Shulsinger, 130 West 42nd St., New York 36, N. Y.

**Sept. 19-23—Boston, Mass.**
National Municipal Cemetery Conference. Annual Meeting (Statler Hotel). Sec., Vernon J. Birkhimer, Bureau of Cemeteries, 4809 W. Franklin St., Richmond 26, Va.

**Sept. 20-23—Grand Rapids, Mich.**
Michigan Municipal League. Annual Meeting (Pantlind Hotel). Dir., John H. Huess, 205 South State St., Ann Arbor, Michigan.

**Sept. 20-23—Minneapolis, Minn.**
United States Civil Defense Council. Annual Meeting (Lexington Hotel). Sec., Elliott R. Jackson, Municipal Auditorium, Atlanta 3, Georgia.

**Sept. 21-23—St. Paul, Minn.**
American Water Works Assoc.—North Central Section. Annual Meeting (Lowry Hotel). Sec., Carl A. Flack, Water Dept., 216 City Hall, St. Paul, Minn.

**Sept. 21-23—Traverse City, Mich.**
American Water Works Assoc.—Michigan Section. Annual Meeting (Park Place Hotel). Exec. Sec., T. L. Vander Velde, Dept. of Health, Lansing 4, Mich.

**Sept. 21-23—Cincinnati, Ohio**
Ohio Municipal League. Annual Meeting (Sheraton-Gibson Hotel), Exec. Dir., J. P. Coleman, 60 East Broad Street, Columbus 15, Ohio.

**Sept. 25-27—Jefferson City, Mo.**
Missouri Sewage & Industrial Wastes Assoc. Annual Meeting (Hotel Governor). Sec.-Treas., W. A. Kramer, Div. of Health, State Office Bldg., Jefferson City, Missouri.

**Sept. 25-28—Palo Alto, Calif.**
National Assoc. of Tax Administrators. Annual Meeting (Rickey's Studio Inn). Exec. Sec., Charles F. Conlon, 1313 East 60th St., Chicago 37, Ill.

**Sept. 25-28—Philadelphia, Pa.**
Pennsylvania Municipal Authorities Assoc. Annual Meeting (Ben Franklin Hotel). Sec., Chas. F. Beeduber, 506 State St. Bldg., Harrisburg, Pa.

**Sept. 25-29—Denver, Colo.**
National Institute of Municipal Law Officials. Annual Meeting (Brown Palace). Exec. Sec., Charles S. Rhyne, 839 17th St., N.W., Washington 6, D. C.

**Sept. 26-30—Washington, D. C.**
National Recreation Congress. Annual Convention (Shoreham Hotel). Sec., Willard B. Stone, 8 W. 8th St., New York.

**Sept. 28-30—Prince Edward Is., Can.**
American Water Works Assoc.—Canadian Section-Maritime Branch. Annual Meeting. (Charlottetown Hotel). Sec., J. D. Kline, P. O. Box 608, Halifax, Nova Scotia, Canada.

**Sept. 28-30—Madison, Wis.**
American Water Works Assoc.—Wisconsin Section. Annual Meeting (Loraine Hotel). Exec. Sec., Harry Breimeister, Utilities Engr., City of Milwaukee, 607 Municipal Bldg., Milwaukee 2, Wisconsin.

**Oct. 1-4—Springfield, Ill.**
Illinois Municipal League. Annual Meeting (Leland Hotel). Dir., A. L. Sargent, 537 South 4th St., Springfield, Ill.

**Oct. 2-4—Galveston, Texas**
Texas Municipal League. Annual Meeting (Galvez and Buccaneer Hotels). Dir., Steve Matthews, 402 Vaughn Bldg., Austin 1, Texas.

**Oct. 2-5—Detroit, Mich.**
National Association of Housing and Redevelopment Officials. Annual Meeting (Statler-Hilton Hotel). Exec. Dir., John O. Lange, 1313 E. 60th St., Chicago.

***Oct. 2-5—St. Louis, Mo.**
Governmental Research Association. Annual Meeting (Hotel Chase). Chairman, Francis J. Kelly, Room 403, 151 Court St., New Haven, Conn.

**Oct. 2-6—Washington, D. C.**
International Association of Chiefs of Police. Annual Meeting (Hotel Statler). Exec. Sec., Leroy E. Wike, Mills Bldg., Washington 6, D. C.

**Oct. 2-6—Philadelphia, Pa.**
Water Pollution Control Federation (formerly the Federation of Sewage and Industrial Wastes Associations). Annual Meeting (The Trade & Convention Center). Exec. Sec., Ralph E. Fuhrman, 4435 Wisconsin Ave., N.W., Washington 16, D. C.

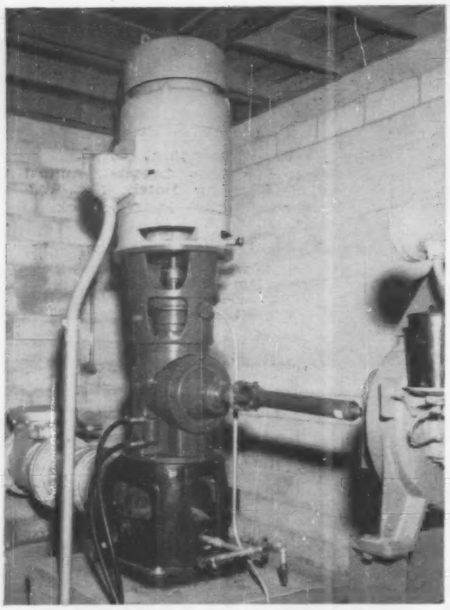
**Oct. 2-9—Montevideo, Uruguay**
Inter-American Association of Sanitary Engineering. Annual Meeting (Hotel Carrasco). Sec. Gen., F. W. Montanari, 414 Walnut Street, Room 302, Cincinnati 2, Ohio.

**Oct. 4-6—Gilbertsville, Ky.**
Kentucky Municipal League. Annual Meeting (Ky. Dam Village State Park). Exec. Sec., Carl B. Wachs, Room 64, McVey Hall, Univ. of Ky., Lexington, Ky.

**Oct. 5-7—Bismarck, No. Dakota**
North Dakota Water & Sewage Works Conference. Annual Conference (Grand Pacific Hotel). Sec.-Treas., W. Van Heuvelen, Capital Bldg., Bismarck, No. Dakota.

**Oct. 9-11—Charlotte, N. C.**
North Carolina League of Municipalities. Annual Meeting (Ovens Auditorium & Charlotte Coliseum). Exec. Dir., Mrs. Davetta L. Steed, 1009 Raleigh Building, Raleigh, North Carolina.

*(Continued on page 236)*



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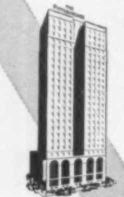

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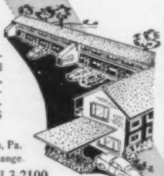

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*(Continued from page 235)*

**Oct. 9-11—Wahpeton, No. Dakota**

League of North Dakota Municipalities. Annual Meeting (Wahpeton Hotel). Exec. Sec., Mrs. H. C. McCreery, 408½ Main Ave., Bismarck, No. Dakota.

**Oct. 9-12—Birmingham, Ala.**

American Water Works Assoc.—Alabama-Mississippi Section. Annual Meeting (Tutwiler Hotel). Sec., Ernest Bryan, McWane Cast Iron Pipe Co., Box 2601, Birmingham, Ala.

**Oct. 11-14—Atlantic City, N. J.**

Eastern Water Company Conference (formerly Pennsylvania Water Works Assoc.) Annual Meeting (Chalfonte Hotel). Sec., R. L. Tyler, 1 Morgan Ave., Palmyra, N. J.

**Oct. 16-19—Galveston, Texas**

American Water Works Assoc.—Southwest Section. Annual Meeting (Galvez Hotel.) Sec., Leslie A. Jackson, Municipal Water Works, Robinson Memorial Auditorium, Little Rock, Ark.

**Oct. 16-20—San Francisco, Calif.**

International City Manager's Assoc. Annual Meeting (Sheraton-Plaza Hotel). Exec. Dir., Orin E. Nolting, 1313 East 60th Street, Chicago 37, Ill.

**Oct. 16-22—San Diego, Calif.**

VIII Inter-American Municipal Congress. Bi-annual Meeting (El Cortez Hotel). Exec. Sec., Dr. Robert F. Wilcox, San Diego State College, San Diego, Calif.

**Oct. 17-18—Little Rock, Ark.**

Arkansas Municipal League. Annual Meeting (Marion Hotel). Exec. Dir., Glenn G. Zimmerman, 416 Maple, North Little Rock, Ark.

**Oct. 17-21—Chicago, Ill.**

48th Annual National Safety Congress. (Conrad Hilton, Pick-Congress, Sheraton Towers Hotels). Sec., R. L. Forney, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

**Oct. 19-21—Des Moines, Iowa**

American Water Works Assoc.—Iowa Section. Annual Meeting (Fort Des Moines Hotel). Sec.-Treas., J. J. Hail, Water Dept., City Hall, Dubuque, Iowa.

***Oct. 20-22—Canton, Ohio**

Street Maintenance and Sanitation Officials. Annual Meeting (Onesto Hotel). Exec. Sec., Evelyn M. Murgatroyd, 71 No. Union St., Akron 4, Ohio.

**Oct. 20-22—Atlantic City, N. J.**

American Water Works Assoc.—New Jersey Section. Annual Meeting (Madison Hotel). Sec., A. F. Pleibel, R. D. Wood Co., 683 Prospect St., Maplewood, N. J.

**Oct. 20-22—Walla Walla, Wash.**

Pacific Northwest Pollution Control Assoc. Annual Meeting (Marcus Whitman Hotel). Sec.-Treas., Gilbert H. Dunstan, Box 176, Pullman, Washington.

***Oct. 21-22—Boston, Mass.**

Mass. Federation of Planning Boards. Annual Meeting (Hotel Vendome). Sec., C. M. Lagace, 81 Middle St., Gloucester.

***Oct. 23-25—Wichita, Kansas**

Kansas Assoc. of Municipal Authorities. Annual Meeting (Broadview Hotel). Asst. Sec., A. D. McGuire, P. O. Box 99, Overland Park, Kansas.

***Oct. 23-26—Washington, D. C.**

National Institute of Governmental Purchasing. Annual Meeting (Shoreham Hotel). Exec. V. P., Albert H. Hall, 1001 Connecticut Ave., N.W., Washington, D.C.

***Oct. 23-26—Hamilton, Ontario**

Community Planning Assoc. of Canada. Annual Meeting (Royal Connaught Hotel). Sec.-Treas, Miss J. M. Laventure, 77 MacLorea St., Ottawa, Ontario, Canada.

***Oct. 23-26—Los Angeles, Calif.**

League of California Cities. Annual Meeting (Biltmore Hotel). Assoc. Dir., Howard Gardner, Hotel Claremont, Berkeley, Calif.

***Oct. 23-27—Buffalo, N. Y.**

Canadian Institute of Sewage and Sanitation. Annual Meeting (Statler Hilton). Sec.-Treas., Dr. A. E. Berry, 72 Grenville, Toronto, Ontario, Canada.

***Oct. 23-27—Philadelphia, Pa.**

American Institute of Planners. Annual Meeting (The Warwick Hotel). Exec. Dir., W. C. Dutton, Jr., Suite 410, 2400 16th St., N.W., Washington, D. C.

***Oct. 23-28—New York, N. Y.**

Public Personnel Assoc. Annual Meeting (Hotel New Yorker). Dir., K. O. Warner, 1313 E. 60th St., Chicago, Ill.

***Oct. 24-26—Colorado Springs, Colo.**

American Water Works Assoc.—Rocky Mt. Section. Annual Meeting Broadmoor Hotel). Sec., H. F. Kepner, 550 Alcott, Denver, Colo.

***Oct. 24-26—Colorado Springs, Colo.**

Rocky Mountain Sewage and Industrial Wastes Assoc. Annual Meeting (Broadmoor Hotel). Sec.-Treas., Verne E. Plath, P. O. Box 149, Englewood, Colo.

***Oct. 24-28—Monticello, Ill.**

American Water Works Assoc.—Illinois and Indiana Annual Water Works Management Short Course (Allerton Park). General Chairman, T. E. Larson, Ill. State Water Survey, Box 232, Urbana, Ill.

***Oct. 25-27—Long Beach, Calif.**

American Water Works Assoc.—California Section. Annual Meeting (Lafayette Hotel). Sec., F. F. Watters, State Bldg., Civic Center, San Francisco, Calif.

***Oct. 26-27—New Haven, Conn.**

New England Sewage and Industrial Wastes Assoc. Annual Meeting (Taft Hotel). Sec.-Treas., Earl R. Howard, Bureau of Public Works, Hartford, Conn.

***Oct. 26-28—Columbus, Ohio**

American Water Works Assoc.—Ohio Section. Annual Meeting (Deshler-Hilton Hotel). Sec., J. Howard Bass, Henry P. Thompson Co., 1720 Section Rd., Cincinnati, Ohio.

***Oct. 30-Nov. 1—W. Palm Beach, Fla.**

Florida League of Municipalities. Annual Meeting (George Washington Hotel). Exec. Sec., Gordon T. Butler, 218 West Adams St., Room 301 (P. O. Box 778), Jacksonville, Fla.

***Oct. 31-Nov. 4—San Francisco, Calif.**

American Public Health Assoc. Annual Meeting (Civic Auditorium). Dir., Dr. Berwyn F. Mattison, 1790 Broadway, N. Y. 19.

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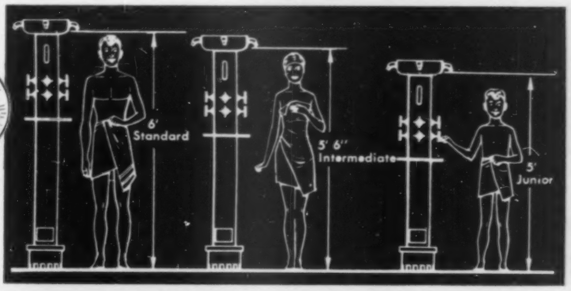

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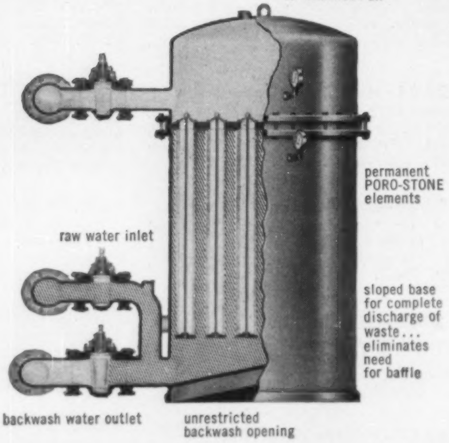
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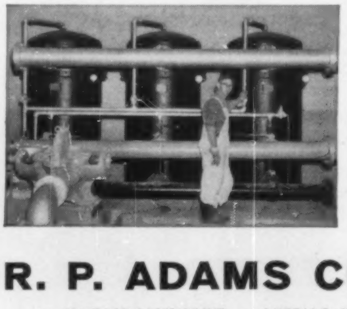

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Publications on these pages are available from the addresses indicated and are usually free unless a price is given.

## Sewage Manual

SEWER MAINTENANCE, MANUAL OF PRACTICE No. 7—*Prepared by the Subcommittee on Sewer Maintenance, Water Pollution Control Federation, 4435 Wisconsin Avenue, Washington 16, D. C.* 64 *pp.* $1.50; *Federation members,* $1.

This manual presents procedures and practices helpful in establishing the sewer system as an effective public utility. It contains worthwhile practical experience on all aspects of sewer maintenance, has 24 illustrations, 23 tables, and 65 references. The manual provides guidance in sound basic policies; personnel requirements; organization and training; planning and record keeping; types and application of specialized equipment; practical procedures for preventive maintenance and emergency repairs; details of design especially important to maintenance work; and public relations activities.

## Refuse Composting

COMPOSTING OF ORGANIC WASTES, SUPPLEMENT 2—*An Annotated Bibliography. John S. Wiley, Sanitary Engineer Director, U. S. Department of Health, Education and Welfare, Public Health Service, Technical Development Laboratories, Savannah, Ga.* 1960. 64 *pp.*

For those still trying to turn municipal refuse into a marketable fertilizer, here is a text that will occupy their time.

This third bibliography on composting, supplementing the initial bibliography and Supplement 1, lists the latest writings on the subject and gives a brief review of each writing. Each writing is given a reference number which is repeated in the author index, geographical index, and subject index located at the end of the bibliography.

There will be no difficulty in finding methods described that *can* turn the refuse into a fairly satisfactory low-grade, low-priced fertilizer. Their readers will have great difficulty, however, in finding any method applicable to conditions in this country that is not so expensive to rule out its use.

## Water For New York

WATER FOR NEW YORK, A STUDY IN STATE ADMINISTRATION OF WATER RESOURCES—*By Roscoe C. Martin. Syracuse University Press, Box 87, University Station, Syracuse* 10, *N. Y.* 1960. 264 *pp.* $5.

With the rapidly increasing demand for water for both private and commercial use, this book is a timely survey of the manner in which New York State administers its water resources. It points out that although the supply is sufficient to meet reasonable needs, the administration of these water resources is spread among 25 unrelated agencies that function in a manner far from satisfactory.

## Mobile Home Planning

MOBILE HOMES PARKS AND COMPREHENSIVE COMMUNITY PLANNING — *By Ernest R. Bartley and Frederick H. Bair, Jr. Studies in Public Administration, No. 19. Public Administration Clearing Service, University of Florida, Gainesville, Fla.* 1960. 147 *pp.* $3 *paperback,* $5 *hard bound.*

Mobile homes, ungraciously known as house trailers, are continuing to grow in popularity. This book tells cities what to do to make them constructive portions of the urban scheme. It points out that today production of mobile homes has grown so rapidly that it now virtually equals the number of housing units in multiple family dwellings. The text is a source book for city officials and planning consultants when developing adequate measures for mobile homes. It tells how to incorporate controls into a community's comprehensive plan, zoning, building and health ordinances, and gives other useful information to insure that mobile homes will provide a worthy segment of the housing within a city.

## Mayors' Conference

CITY PROBLEMS OF 1960. THE ANNUAL PROCEEDINGS OF THE UNITED STATES CONFERENCE OF MAYORS—*Edited by Harry R. Betters. United States Conference of Mayors,* 1707 *H Street N.W., Washington* 6, *D. C.* 1960. 153 *pp.* $3.50.

A collection of papers delivered when the mayors of the United States and Canada met recently in Chicago The contents cover welfare problems, urban planning,

**(Continued on page 240)**

*New Efficiency In Beach Cleaning*

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LOCKWOOD

The **BEACH CLEANER** can clean your beaches of debris—moving under the surface to a depth of 1 to 6 inches, it gathers cigarette butts to items 12 inches in diameter.

SELF-PROPELLED BEACH CLEANER OFFERS THESE FEATURES:

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- 3 TO 5 M.P.H. Under NORMAL CONDITIONS
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*(Continued from page 239)*

the economic climate and the urban boom and crisis in the 60's; population and community change; developments and trends in metropolitan areas; intergovernmental relations; protecting home rule; urban renewal, slum clearance and housing; and stream pollution and water resources.

## New York City and Freight

FREIGHT AND THE METROPOLIS—*By Benjamin Chintz. Harvard University Press, Cambridge 38, Mass.* 1960. 211 *pp.* $4.50.

This is the sixth volume of the New York Metropolitan Region Study and is concerned with the impact of America's transport revolution on the New York metropolitan region. This volume discusses in detail the handling of foreign commerce passing through the Port of New York and the processing of these materials into products. Mr. Chintz discusses the background history, assesses its future, analyzes the potential of the St. Lawrence Seaway and its effect on New York. He gives an account of the metropolitan area's manufacturing economy and describes the interplay of these and other factors upon the Port.

This book will be of particular interest to those cities within or directly affected by the economy of Metropolitan New York. Through the greater understanding of the economic climate of this area these cities should be enabled to chart more wisely their own future programs. Other metropolitan areas, especially those with port facilities, likewise will benefit from the information brought out in this book.

## State Government

THE BOOK OF THE STATES, VOLUME XIII—*The Council of State Governments,* 1313 *East Sixtieth Street, Chicago 37, Illinois.* 1960. 576 *pp.* $9. *With two* 1961 *supplements,* $12.

Since cities are "creatures of the state," local governments can scarcely ignore this book. It is a source-book of information about the structures, working methods, financing and functioning of state governments. It covers the executive, legislative and judicial branches together with the inter-governmental agencies and the public services performed by them. Two supplements will be published in 1961 giving comprehensive lists of state officials and members of the legislatures.

Special emphasis is given to legislation; legislative trends; judicial decisions; uniform state laws; judicial reorganization progress; interstate, federal, local relations, planning and development and many of the major areas of activity as they affect various levels of government.

## Planning Opposition

THE MASTER PLAN UNMASKED—*By Frederick Shulman, New Milford Citizens Committee, c/o Mrs. Beatrice Erickson, Secretary, Danbury Rd., New Milford, Conn.* 1960. 84 *pp.* $1.

This text merits study by thoughtful city planners—not for the details it contains about New Milford, but for the mental exercise in determining what is required to win public approval of a master plan, or any other municipal measure. Without good channels of communication between the public and its local government, any measure has difficulty.

## Shakespeare in City Hall

HAMLET REVISED, SUMMARY OF THE ANNUAL REPORT 1959, GREENWICH, CONNECTICUT—*The Board of Estimates and Taxation, Greenwich, Connecticut.* 1960. 92 *pp.*

One of the most unusual annual reports that we have seen. By deft, imaginative and artistic work, Greenwich has tied its year's municipal business to the playwright from Bard-upon-Avon. It reflects well not only on the Greenwich municipal government, but also on the people of Greenwich.

## Water Supply and Pollution Control Research

WATER SUPPLY AND POLLUTION CONTROL, A RESEARCH OF ACTIVE PROJECTS — 1958—*Public Health Service Publication No.* 768. *Research Grants Coordinator, Division of Engineering Services, Public Health Service, Washington* 25, *D. C.* 1960. 71*pp.*

This is the first inventory of water supply and pollution control research projects active during 1958. It deals with 280 projects and is designed to provide a record of research and to facilitate communication between investigators. The inventory will be revised and reissued annually.

### ADMINISTRATION & GOVERNMENT

GENERAL—Recent Council-Manager Developments and Directory of Council-Manager Cities. The International City Managers' Association, 1313 East 60th St., Chicago, Ill. 1960. 41 pp. $2.

CALIFORNIA—California Legislation Governing Municipal Incorporation: A Criticism and Suggested New Policies. By Stanley Scott. Bureau of Public Administration, University of California, Berkeley, Calif. 1960. 14 pp. 25 cents.

**SAN DIEGO COUNTY *chose* STEEL PIPE**

In 1959 the Second San Diego Aqueduct was constructed for the San Diego County Water Authority. This 30 mile line running over hill and dale, required rugged 76 in. and 73 in. welded steel pipe ranging in wall thickness from 3/8 in. up to and including 1-5/32 in. All pipe was in 32 ft. lengths with a spun mortar lining and an exterior mortar coating.

This 30 mile steel pipe line was laid by Young & Anderson Company, Brea, California.

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ECONOMY
LONG LIFE

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**STEEL PLATE FABRICATORS ASSOCIATION**
105 West Madison Street • Chicago 2, Illinois

IOWA CITY, IA.—You and Your Job with Iowa City. Office of the City Manager, City Hall, Iowa City, Ia. 1959. 21 pp.

TALLAHASSEE, FLA.—Personnel Accidents. Office of the City Manager, City Hall, Tallahassee, Fla. 1960. 26 pp.

## ANNUAL REPORTS WORTH READING

PUERTO RICO—Puerto Rico Aqueduct and Sewer Authority Annual Report 1959. Office of the Executive Director, Puerto Rico Aqueduct and Sewer Authority, P. O. Box 7066, Barrio Obrero Station, San Juan, Puerto Rico. 1960. 33 pp.

WAYNE COUNTY, MICH.—Road Commissioners 53rd Annual Report 1959. Board of County Road Commissioners of Wayne County, 7th Floor, City-County Bldg., Detroit 26, Mich. 1960. 136 pp.

WILMINGTON, MASS.—Annual Report 1959. Office of the Town Clerk, Town Hall, Wilmington, Mass. 1960. 136 pp.

## CIVIL DEFENSE

GENERAL—Clay Masonry Family Fallout Shelters, MP-18. Published by the Office of Civil and Defense Mobilization. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 1960. 16 pp.

## FINANCE AND TAXATION

MASSACHUSETTS—Proceedings of the Fourth Annual School for Massachusetts Assessors. Bureau of Government Research, University of Massachusetts, Amherst, Mass. 1959. 78 pp.

MILWAUKEE COUNTY, WIS.—Capital Budgeting in Milwaukee County. Bureau of Government, University Extension Division, University of Wisconsin, Madison 6, Wis. 1959. 17 pp.

PHOENIX, ARIZ.—Annual Financial Report. Office of the City Clerk, City Hall, Phoenix, Ariz. 1959. 62 pp.

## LEGAL

NEW JERSEY—1959 Laws of Interest to New Jersey Municipalities. New Jersey State League of Municipalities, 603 Trenton Trust Bldg., Trenton 8, N. J. 1960. 64 pp. $1.

## PARKS

GENERAL—Securing Open Space for Urban America: Conservation Easements. Technical Bulletin 36. Urban Land Institute, 1200 18th St., N. W., Washington 6, D. C. 1959. 67 pp. $3.

NEW YORK-NEW JERSEY—60 Years of Park Cooperation; A History of 1900 to 1960 of the Palisades Interstate Park Commission. Palisades Interstate Park, Administration Building, Bear Mountain State Park, Bear Mountain, N. Y. 1960. 106 pp.

## PLANNING, ZONING AND HOUSING

GREAT FALLS, MONT.—Subdivision Regulations. Great Falls City-County Planning Board, Room B-3, Civic Center Bldg., Great Falls, Mont. 1960. 26 pp.

GREENDALE, WIS.—Preliminary Capital Improvements Plan. Nelson-Ball & Associates, Planning, Research & Public Management Consultants, 1733 North Farwell Ave., Milwaukee 2, Wis. 1959. 18 pp.

MINNEAPOLIS, MINN.—Land Use: Minneapolis, 1948 & 1956. Publication No. 110, General Land Use Series No. 2. City Planning Commission, Municipal Bldg., Minneapolis 15, Minn. 1959. 43 pp.

NEW YORK—Methods of Reducing the Cost of Public Housing. School of Architecture, Pratt Institute, Brooklyn, N. Y. 1960. 139 pp.

NEW YORK, N. Y.—Rezoning New York City. The City Record, 2213 Municipal Bldg., New York 7, N. Y. 1959. 52 pp. $3.25.

PHILADELPHIA, PA.—Capital Program 1960 to 1965. Philadelphia Planning Commission, City Hall, Philadelphia, Pa. 1960. 190 pp.

SANGAMON COUNTY, ILL.—Economic Potentials, No. 1. 33 pp. Land Use Plan, No. 2. 28 pp. Circulation Plan, No. 3. 24 pp. School and Park Plan, No. 4. 40 pp. Sangamon County Regional Planning Commission, 617 East Jefferson, Springfield, Ill. 1960. $1.50 each, $5 for the set of 4.

## REPRESENTATIVE MUNICIPAL BOND ISSUES

### From July 6th to August 2nd, 1960

| Date of Issue | Locality | Amount in $1000 | — Purpose | Term Yrs. to Maturity | Rate of Int. | Yield % |
|---|---|---|---|---|---|---|
| 7/ 6/60 | Orleans Levee Dist., La. | 1,500 | Public Improvement | 5¾ | 3.25 | 3.25 |
| 7/ 6/60 | West Slope Sanitary Dist., Ore. | 1,250 | Gen. Obl. Sanitary | .... | .... | 4.44 |
| 7/ 7/60 | Chicago, Ill. | 1,970 | Sewer | 11 | 3.50 | .. |
| 7/ 7/60 | Newton, Mass. | 1,400 | School, Street Improvemnt | 9 | 3.20 | 3.14 |
| 7/12/60 | Denton, Tex. | 1,700 | Water and Sewer Rev. | 18½ | .... | 4.04 |
| 7/12/60 | Grand Rapids, Mich. | 1,000 | Motor Vehicle Highway Fund | 9½ | 3.20 | 3.15 |
| 7/12/60 | Nassau Co., N. Y. | 27,062 | Various Purpose | 13⅔ | 3.90 | 3.86 |
| 7/12/60 | Redondo Beach, Calif. | 8,750 | Small Boat Harbor Rev. | 30 | 5.70 | 5.91 |
| 7/12/60 | Seymour, Conn. | 1,872 | School, Sewer, Redevel | 8½ | 3.70 | 3.64 |
| 7/13/60 | Birmingham, Ala. | 8,500 | Improvement | .... | .... | 3.87 |
| 7/19/60 | Albuquerque, N. M. | 4,980 | Gen. Obl. Water | 10 | .... | 3.98 |
| 7/19/60 | Eugene, Ore. | 25,500 | Utility System Rev. | .... | .... | 3.93 |
| 7/21/60 | Davis & Salt Lake Cos., Utah<br>So. Davis Co. Sewer Imp Dist. | 1,750 | Gen. Obl. Sewer | .... | .... | 3.82 |
| 7/26/60 | DeKalk Co., Ga. | 2,200 | School Lien Water Rev, | .... | .... | 3.88 |
| 7/26/60 | Milwaukee Co., Wis. | 6,000 | County Expressway | 10½ | 3.10 | 3.02 |
| 7/27/60 | Houston, Tex. | 10,525 | Various.............. | 10½ | 3 49 | 3.45 |
| 7/28/60 | Janesville, Wis. | 1,810 | Corporate Purpose | 10½ | 3.18 | 3.17 |
| 8/ 1/60 | Seattle, Wash. | 4,500 | Park Improvement | .... | .... | 3.30 |
| 8/ 2/60 | Boston, Mass. | 1,500 | Urban Redevel. Loan | 8 | 3.50 | 3.46 |
| 8/ 2/60 | Everett, Wash. | 2,700 | Sewer Revenue | .... | .... | 3.89 |

Compiled from THE WEEKLY BOND BUYER

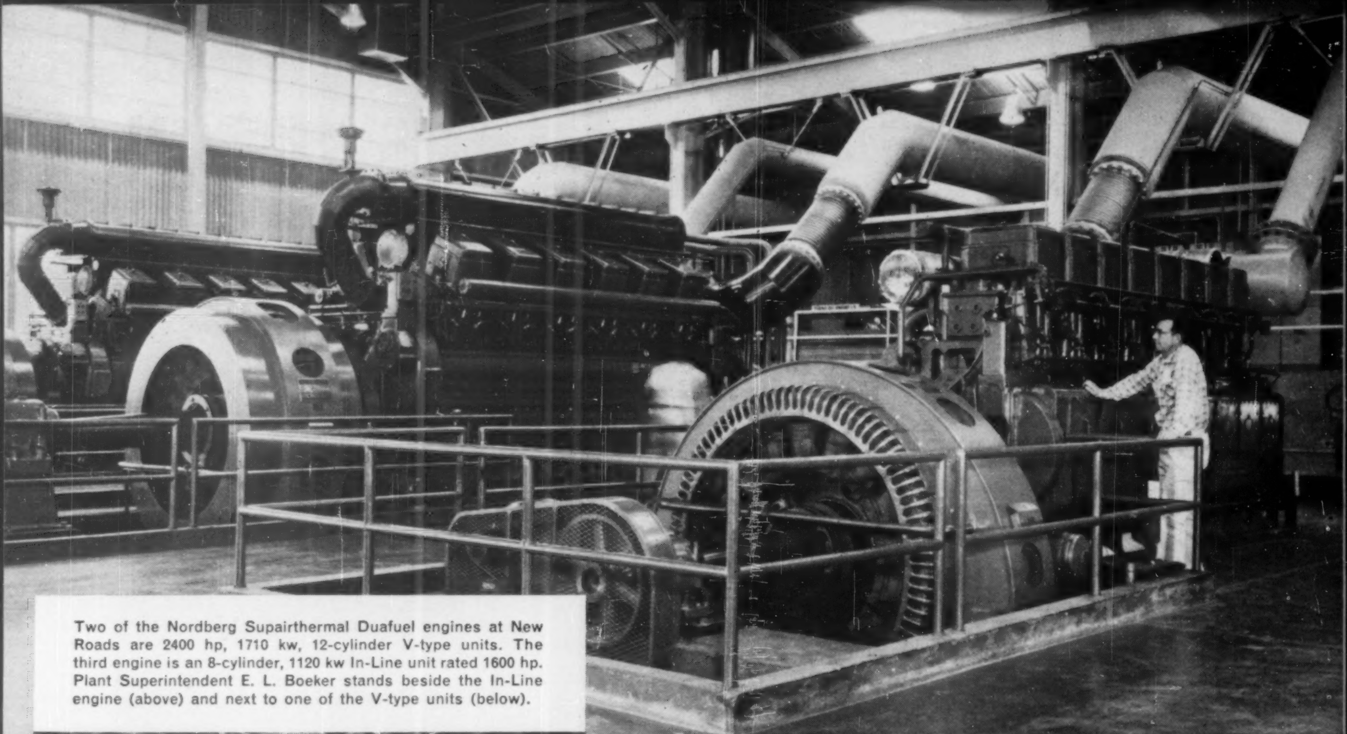
SWENSON the Summer-Winter Spreader...

U. S. Army Photograph

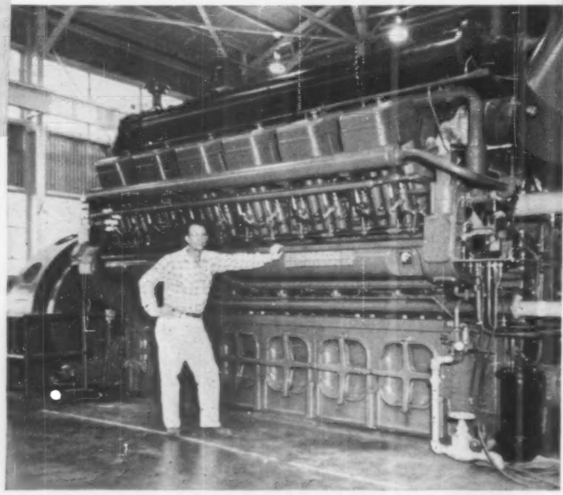
for resurfacing and ice control

Spread sand, gravel, salt, calcium chloride, cinders or any combination of these materials. Clutch-controlled from cab of truck. Any desired rate-of-flow. Steady or intermittent up to 30 M.P.H. Narrow strips or full traffic lanes. Forward or reverse. Models to fit any dump-truck box. Chain or hydraulic drive. Speed summer construction jobs, dust control, soil stabilization. Handle winter ice-control problems faster, safer, more efficiently. Write for complete information.

SWENSON SPREADER
LINDENWOOD, ILLINOIS



Two of the Nordberg Supairthermal Duafuel engines at New Roads are 2400 hp, 1710 kw, 12-cylinder V-type units. The third engine is an 8-cylinder, 1120 kw In-Line unit rated 1600 hp. Plant Superintendent E. L. Boeker stands beside the In-Line engine (above) and next to one of the V-type units (below).



# Modern power plant at NEW ROADS built around THREE NORDBERG SUPAIRTHERMAL® ENGINES

The town of New Roads, Louisiana, caught in the tide of two-phase electricity in the early 1900's, changed its mind and changed its power. After over 30 years of using special electrical equipment, the city decided to build a completely new plant and, in 1957, turned over the electric load to three Nordberg Supairthermal Duafual® engines.

During 1958, these engines produced power for an average total fuel cost of only 2.841 mills per kwh. They achieved this efficiency despite the fact that though the three engines have a combined capacity of 4550 kw, the plant's peak load for the year was a mere 2786 kw. City officials were looking ahead when they planned their new plant, and results have already been gratifying. Now, industry is again turning its eye, rather than its back, on the town.

Billings are on the rise. As compared to 1956, the last full year for two-phase power, net operating revenue in 1958 was up over $58,000 while total operating expenses were up less than $10,000, for an increase in net earnings for the light plant of over $48,000 . . . another municipal power job well done.

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P560

**NORDBERG MANUFACTURING COMPANY, Milwaukee 1, Wisconsin**

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SAN FRANCISCO • TAMPA • WASHINGTON • TORONTO • VANCOUVER • JOHANNESBURG • LONDON • MEXICO, D. F.

## Portable Tool Heater

According to Aeroil Products Co., Inc., street maintenance crews will be able to use the "Smoothie" to heat a pail of asphalt binder cement and two smoothers or tampers in one-half the time needed with larger equipment.

The unit, which can be spotted around several small paving patch jobs, has a split flame burner and uses a handy, small 20-pound bottle of L. P. Gas, or a 100-pound cylinder. It is mounted both on wheels and short skids and can be operated on the ground as a mobile unit, or bolted to a truck floor. Heater jacket is of welded steel with insulation. Bucket grille or grip top of steel is removable. An open-end tool chamber has rigid sets to hold tools.

For specifications and details, write AEROIL PRODUCTS CO., INC., 69 WESLEY ST., SOUTH HACKENSACK, N. J.

## Push-Button Refuse Collection Body

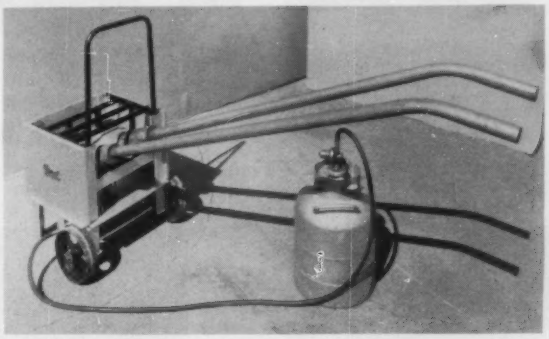
Four main features of design are outstanding on the Colectomatic Mark II, introduced by The Heil Co. a few days prior to the American Public Works Association convention in New York City.

*The first* is electronic solenoid control of hydraulic valves. This means push-button operation of the mechanism with the unit kept always in perfect adjustment as far as sequence of operating and packing actions are concerned.

*The second* is unloading of contents by ejection out the rear opening, rather than by dumping. This important operating characteristic results in considerable over-all cost savings and allows purchase of truck units which are not necessarily weighted to prevent instability on unlevel conditions.

*The third* is an important time-saving factor and lies with the unit's ability to pick up 1-yard "con-

*(Continued on page 245)*



***The "Smoothie" tool heater weighs 135 pounds. Its height, with handle, is 38 inches.***

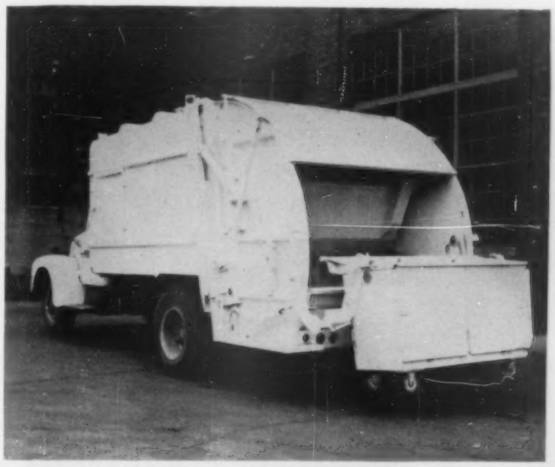
## New Line of Aerial Lifts

The new Servi-Lift units, announced by Hunt-Pierce Corp. of Milford, Conn., enable fewer men to do more work with greater safety in line construction and overhead maintenance operations.

Servi-Lifts require no outriggers and may be mounted on vehicles as small as 1-ton trucks. Entire structure, including crows' nest, upper boom, lower boom, and turret arm, is built of fiberglass for maximum insulation. Continuous 360° horizontal rotation of the entire unit, with no stopping point, lower boom travel from horizontal to vertical, and 270° rotation of the upper boom provide exceptional operating flexibility and coverage of wide working area. Push-button operating controls governing direction and speed of all movements.

Primary power source is a standard commercial electric generator driven by auxiliary motor or truck engine. Normal lift operations use only half the generator capacity, making extra power available for floodlights, power tools, etc.

Two standard Servi-Lift models are available, one with 36-foot working height and the other with 40-foot working height. For full facts, write HUNT-PIERCE CORP., 59 MEADOW ST., MILFORD, CONN.



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**VALVES
AND
HYDRANTS
SINCE
1861**

Never before has the Ludlow-Rensselaer sales and service frontline been so strategically located to serve customers from the Atlantic to the Pacific.

Twelve branch offices and six agents, with years of experience in the industry, are spotted from coast to coast to take care of your needs better and faster.

Check the Ludlow-Rensselaer representative who serves you. Call him and get acquainted. Or call the home office and we will have your nearest representative contact you.

You'll find Ludlow-Rensselaer service of the same high standard as the valves and hydrants which have earned for this firm 99 years of recognition as a leader in the industry.

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- Double Disc Parallel Seat A.W.W.A. Gate Valves
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- Floor Stands
- Valve Boxes

Other waterworks Gate Valves for working pressures to 500 lbs. and over

**LUDLOW & RENSSELAER**

VALVES AND HYDRANTS

THE LUDLOW VALVE MANUFACTURING CO., INC., TROY, N.Y.—SINCE 1861

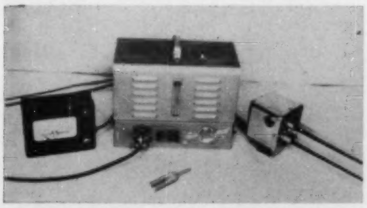
(Continued from page 243)

tainerized" refuse hoppers without requiring them to be spotted in a precise location with respect to the truck and without requiring additional operator latching and unlatching.

*The fourth* is what is called "Duo-Press" compaction, which means denser compaction, elimination of voids and higher payloads.

The Colectomatic Mark II is available in 13, 16 and 20-cubic yard capacities and with optional features. For full details, write The Heil Co., Milwaukee 1, Wis.

## Radar Speed Timer



This radar speed check is the third in a group of police instruments developed and promoted by the Stephenson Corp. of Red Bank, N. J. The others are the Harger Drunkometer and the Borkenstein Breathalyzer, both used extensively in curbing drunken driving.

The Speedalyzer radar speed check can be operated by a one-man speed patrol, although sometimes two men are used, and it can be set in three minutes or less. The instrument has a transistorized power supply.

The Speedalyzer indicates motor vehicle speeds from 0 to 100 miles per hour. It is effective on cars from 100 to 600 feet distant, trucks and buses up to 1500 feet. It detects violators passing in either direction. The instrument is compact, total weight of its five components being slightly over 20 pounds. An illustrated folder giving complete information is available from Stephenson Corporation, Red Bank, N. J.

## Improves Filter Efficiency

Developed by Dorr-Oliver Inc. and adopted as a standard component for all its drum and disc filters, this new valve design offers streamlined flow for filtrate in single-and multiple-stage continuous filters.

Dorr-Oliver reports that all internal obstructions have been eliminated, and that in field tests a filter equipped with this new valve has shown liquid phase capacity 50% greater than similar filters equipped with conventional valve.

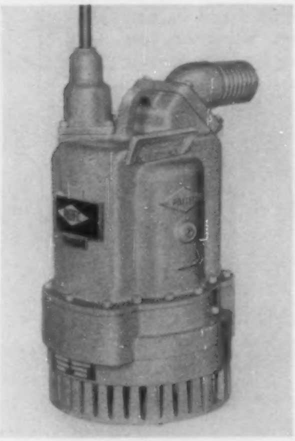
The new valve is to be applied at no increase in price on all single and dual solution applications of D-O continuous filters, including Oliver chemical and metallurgical filters, vacuum precoat filters, string discharge filters, and sludge dewatering filters; and American Savealls and other disc filters.

Full facts can be obtained by writing to Dorr-Oliver Inc., Stamford, Conn.

## Simplifies Dewatering Problems

Lower into water; plug in cables; attach discharge hose; turn start knob: it's that easy to operate Pacific Pumping's new Type SA submersible contractor's pump.

Municipal repair crews will find the SA will pump whatever comes in, even if it is only 5% of the pump's capacity. And it will operate in muddy water or sludge, under semi-dry conditions, and in hot or freezing climate.



This portable sump pump is always primed (eliminates suction hose), and its rubber-lined pump case and special tough alloy impeller are resistant to wear of abrasive sand and mud. Light-weight alloy casing resists action of salt water, and erosive or contaminated water.

For complete information, request *Bulletin*, 1800.9, from Pacific Pumping Co., P.O. Box 44, Oakland, Calif.

(Continued on page 246)

*IN TEXAS
...AND THE WORLD OVER

KERN
SURVEYING INSTRUMENTS

*The Bridge Division of the State of Texas Highway Dept. uses Kern Instruments

WORLD FAMOUS FOR
Working Speed
Operational Simplicity
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DKMI TEN SECOND THEODOLITE (with optical micrometer)

- Exceptional portability and precision.
- Readings automatically . . . AT A GLANCE.
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- Can be used with electric lighting unit for night work.

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Unique—a Kern first! Centers instruments in seconds with remarkable accuracy. Assures exceptional stability with ball-and-socket head, supporting instrument coupling.

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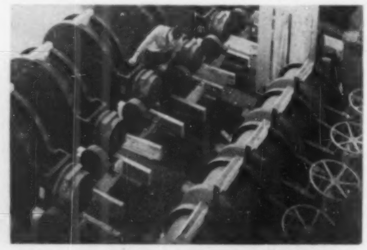
## Use of Butterfly Valves Grows



Evidence of the widespread acceptance of butterfly valves by the water works industry is emphasized by this group of valves crated and ready for shipment from Allis-Chalmers York Works. The larger valves are 48-inch AWWA Class 25-8 rubber seated valves with totally enclosed gear reducers. These were designed for installation with the valve shaft in a vertical position and are manually operated from a floor stand. The second group are 30-inch AWWA Class 125-16 rubber-seated butterfly valves manually operated by totally enclosed gear reducers and handwheel.

The valves are available in both control and shut-off types with manual, pneumatic, hydraulic or electrical operators in a complete size range from 1-inch diameter.

For additional information, write Allis-Chalmers, Milwaukee 1, Wis.

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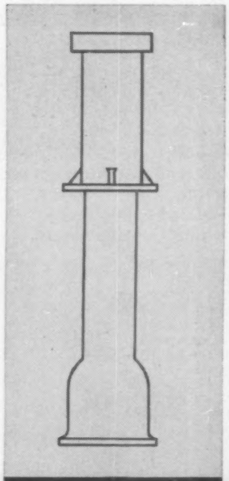
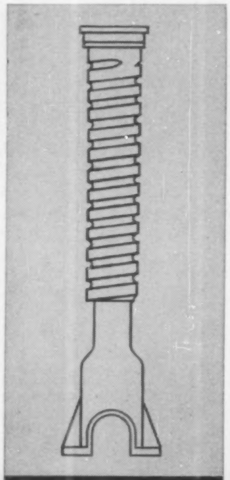
MUNICIPAL
CASTINGS

are available in every size and style!

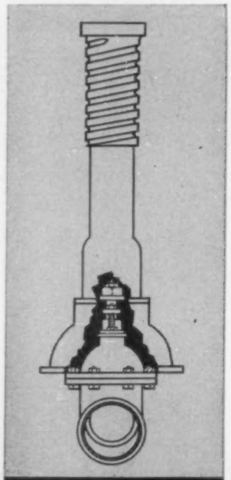
No matter what size, shape or style municipal casting you may desire—you're practically sure to find a "Buffalo" casting to serve your needs. Or, where desired, castings may be made to your own specifications. Whether you need valve, service or roadway boxes, meter boxes, manhole rings and covers or other municipal castings, you'll find all "Buffalo" castings designed for service and dependability.



2 pc. sliding type adj. 5¼" valve box



2½" water or gas ext. service box



3 pc. screw type 5¼" valve box

Prompt quotations given on all your standard or special gray iron or non-ferrous castings.

Write or wire Dept. J for Bulletin M11.

SINCE 1930
BUFFALO PIPE &
FOUNDRY CORP.

BOX 55—STATION B DE 6764 BUFFALO 7, N. Y.

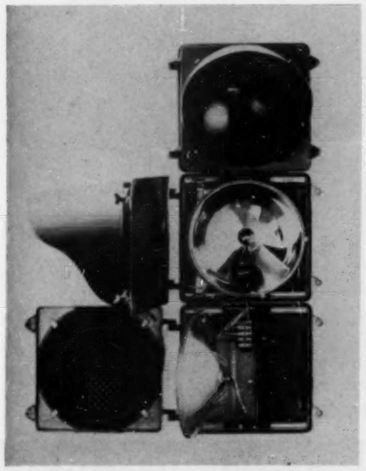
## Aluminum Dump Truck Body

This all-aluminum dump truck body is paying dividends in extra payload, as it saves 1000 pounds in weight over a comparable steel body. It also saves on gas mileage and tire costs, and its rugged welded construction withstands heavy duty. For additional information, write Anthony Co., Streator, Ill.

## Traffic Signals

A new line of traffic signals and beacons is now available for the traffic industry from Traffic Signals, Inc., Shreveport, La. It is the M-Series of 8″ and 12″ signals and beacons, completely adjustable through use of Tri-Stud mountains between sections and on mounting brackets for precise 360° adjustability (not in 5° steps) of each section or each signal.

Simplification is indicated by the facts that door and reflector assemblies are removable without tools, and visor and lens are removable without removing screws. For additional information on the M-Series line, request *Brochure* TS-101; write TRAFFIC SIGNALS, INC., P. O. Box 1303, 22 BEACH ST., SHREVEPORT, LA.



## About Radio Pagers

City-wide radio paging falls under Part 21 of the Rules and Regulations of the Federal Communications Commission, available from the Superintendent of Documents, Washington 25, D. C.

Four frequencies have been allocated to radio paging: 43, 22, 43.58, 35.22 and 35.58 mc.

Since coverage of the central city is desired first with secondary coverage of the areas outside the city the manufacturer usually recommends that the transmitter and antenna be located in the downtown area. The antenna preferably should be on a tower or mast atop the tallest building with the transmitter located in a room on the top floor. The objective here is to keep the length of transmission line between transmitter and antenna short to prevent loss of power in the transmission line.

Coverage is almost directly related to the height of the antenna above the surrounding terrain. Calls are continuously broadcast during the hours of service of the station by means of a tape recorder.

For information, write THE ROBERT DOLLAR CO., COMMUNICATION EQUIPMENT DIV., 50 DRUMM ST., SAN FRANCISCO, CALIF.

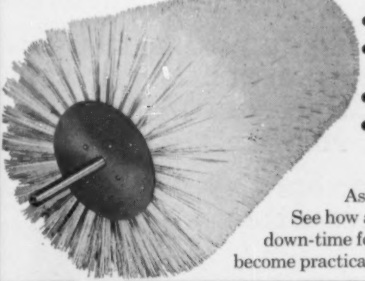
## New Tractor Shovel Options

CONSTRUCTION MACHINERY DIVISION OF CLARK EQUIPMENT CO., PIPESTONE PLANT, BENTON HARBOR, MICH., announces several new options for its Michigan 85A tractor shovel—all designed to increase the

***New optional attachments increase the versatility of the Michigan Model 85A tractor shovel.***

***Well I'll be d.....!***

**Everyone's remark when they see the startling RADAX Broom Coil demonstration.** Never before anything like it—for low price—for speed—for long life and—users say it sweeps better than any broom they have ever had!



- **NO CORES TO BUY**
- **LONG WEARING Plastic Filament**
- **PRE-FABRICATED**
- **"JET-SPEED" FILLING** 5 minutes or less for a new refill—READY TO GO!

Ask for a demonstration. See how and why your sweeper down-time for broom renewals will become practically nil.

**PRICES**

**DELIVERED TO YOUR SHOP**

| SWEEPER MAKE and MODEL | SR FILAMENT | TYNEX NYLON |
|---|---|---|
| MOBILE 54" BROOM | $195.85 | $293.15 |
| MOBILE 58" BROOM | $208.30 | $310.60 |
| WAYNE 450, 460, 520 and 550 | $169.75 | $252.50 |
| ELGIN STREET KING | $258.20 | $388.10 |
| ELGIN WHITE WING | $258.20 | $388.10 |
| ELGIN 20, 30, and 81 | $270.15 | $399.95 |
| AUSTIN-WESTERN 40 | $208.15 | $303.55 |
| AUSTIN-WESTERN 60 | $230.75 | $333.20 |

**RYNAL CORPORATION**
114 ST. JOSEPH ST. • ARCADIA • CALIFORNIA

**HERE is the answer to**

**EMERGENCY BARRICADES**

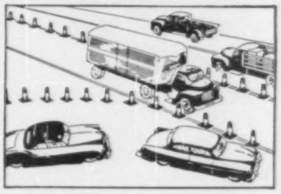
***Lightweight, Easily-Adaptable***

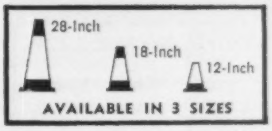
**SAFE-T-CONE**

**TRAFFIC GUIDES**

**SAFE-T-CONES are proven and accepted by Federal, State and Municipal traffic authorities in hundreds of major cities ...for traffic channeling, utility repairs, line painting and emergency blockades.**

**SAFE-T-CONES are easily adaptable to all situations at a moment's notice. Special construction allows them to be "stacked" in small space.**





**AVAILABLE IN 3 SIZES**

**Solid-Color PVC* POLY-CONES—18-inch and 28-inch sizes. Outlasts ordinary cones without upkeep!**

*Poly-Vinyl Chloride

**For full information write**
**RADIATOR SPECIALTY CO., CHARLOTTE, N. C.**

**BAUGHMAN SPREAD-MOBILE**

the Spreader
that's Better
...for ice control

HYDRAULIC
MODEL
FS-56

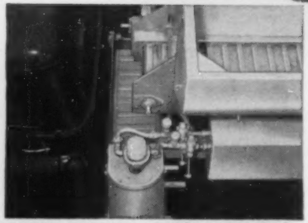
Because...

1. IT OFFERS COMPLETE HYDRAULIC CONTROL.
Speed of discharge from Drag Chain Body Conveyor to Positive Drag Chain Cross Feeder is controlled by hydraulic motor. Second hydraulic motor controls speed of distribution, and width of spread.

2. EXCLUSIVE "CENTER-SPRED" DESIGN.
Permits spread in front of all four wheels; improves traction, visibility and pattern.

3. ONE-MAN CAB CONTROL.
Width of spread, amount of spread, starting, stopping—all are at driver's finger tips. Driver also controls "Safety Baffle" which dampens spread when approaching pedestrians or cars.

*WRITE for illustrated Brochure A-408-B.*



New positive drag chain cross feeder, coordinated with main body drag chain conveyor, assures positive flow of material to side mounted distributor.

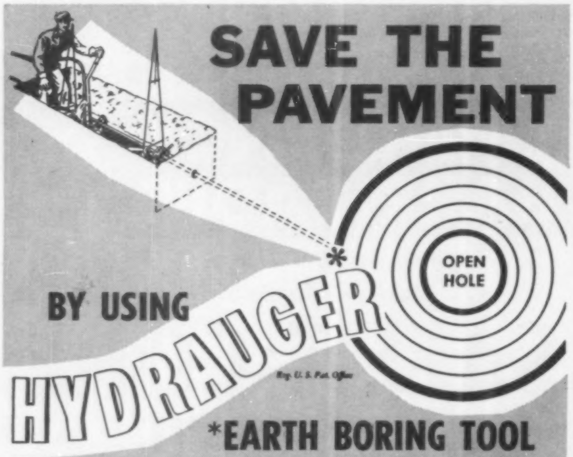
*BETTER SERVICE THROUGH BETTER ENGINEERING*
*SERVICE AND PARTS FROM 200 SERVICE BRANCHES*

BAUGHMAN

**BAUGHMAN MANUFACTURING COMPANY, INC.**

307 SHIPMAN ROAD • JERSEYVILLE, ILLINOIS

**SAVE THE PAVEMENT**


OPEN HOLE
Reg. U. S. Pat. Office

BY USING HYDRAUGER

*EARTH BORING TOOL

LOWEST COST
FOR PIPE INSTALLATION

HYDRAUGER—

- *ELIMINATES TRENCHING*
- *REDUCES COSTS UP TO 90%*
- *BORE—UP TO 250 FT. 2 INCH TO 24 INCH*
- *NO FUMES OR SHOCKS*

*Write for booklet—*

**HYDRAUGER CORP., Ltd.**, 681 Market St., San Fran. 5, Calif.

Please send without obligation, to me, the HYDRAUGER BOOKLET which shows relative costs and speeds of BORING as well as specifications of various Hydrauger models.

NAME__________
ADDRESS__________
CITY__________
STATE__________

**THE J. M. CLEMINSHAW CO.**

— APPRAISERS —

Founded 1923

1601 Brookpark Road Cleveland 9, Ohio

SPECIALIZING IN THE REVALUATION OF MUNICIPALITIES AND RURAL PROPERTY FOR LOCAL TAX EQUALIZATION PURPOSES

*Brochure & Client List Sent on Request*

— BRANCH OFFICES —

Plainville, Conn., 11 Williams Street
Milwaukee, Wis., 2014 Sunset Court
Union, New Jersey, 2165 Morris Avenue
West Des Moines, Iowa, 712 28th Street

*(Continued from page 250)*

unit's production, versatility and ease of handling.

The new diesel engine is 107-hp General Motors Model 5043. The 85A is available also with a 96-hp Waukesha Model 195GK gasoline engine or a 91-hp Waukesha Model 197DLC diesel unit.

Equipped with a 1¾-cubic-yard standard excavating bucket, the Model 85A has a 9000-pound lifting capacity. Optional buckets range in capacity from 1 to 2½ cubic yards and can handle a variety of materials.

New attachments are a large-capacity rotary snow plow capable of handling 1200 tons of snow per hour; a compact street sweeper that can be mounted in place of the bucket; and a hydraulic snap-mount backhoe which can be attached to the rear of the machine in less than one minute without the use of tools.

## Traffic Dots That Stick

***Enrico Maggenti (left), California Division of Highways inspector, shows how adhesive is applied in placement of "Botts Dots" traffic buttons on San Jose - Los Gatos Freeway. At the right is R. W. Gaul, of Adhesive Engineering, San Carlos, Calif., whose firm formulates the structural adhesive.***

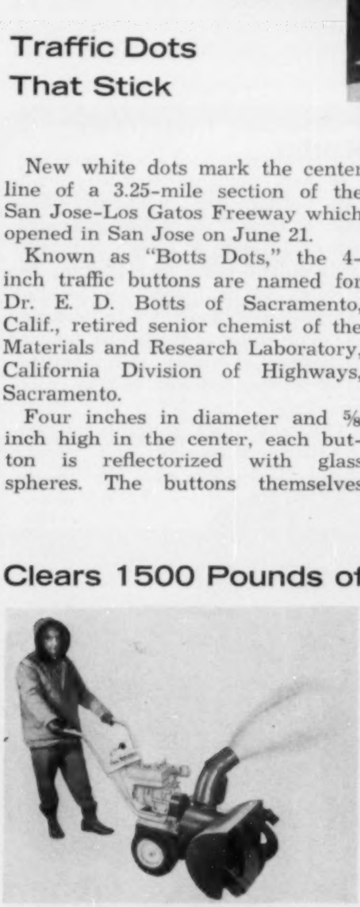
New white dots mark the center line of a 3.25-mile section of the San Jose-Los Gatos Freeway which opened in San Jose on June 21.

Known as "Botts Dots," the 4-inch traffic buttons are named for Dr. E. D. Botts of Sacramento, Calif., retired senior chemist of the Materials and Research Laboratory, California Division of Highways, Sacramento.

Four inches in diameter and ⅝ inch high in the center, each button is reflectorized with glass spheres. The buttons themselves are made of tough, resilient, virtually unbreakable and wear-proof white polyester resin. They are bonded to the pavement by an adhesive of great strength. The applier simply coats the flat bottom of the button, as shown in the picture, with the adhesive and presses it onto a pre-cleaned, pre-marked spot on the pavement.

Additional information on "Botts Dots" traffic lane delineator buttons will be furnished by GRANT WISWELL AND CO., 2782 WAVERLY ST., PALO ALTO, CALIF.

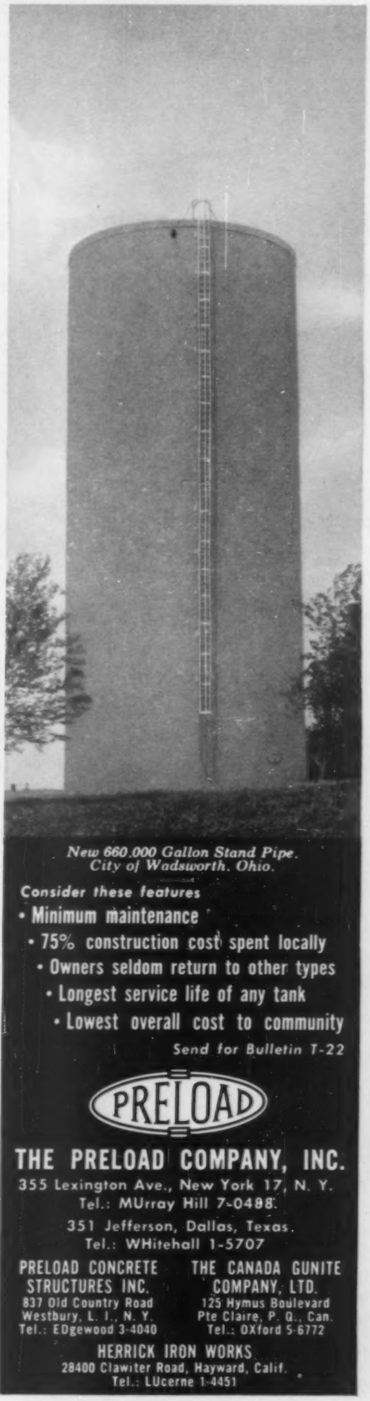
## Clears 1500 Pounds of Snow Per Minute



Newest addition to the Gard-N-Yard line of equipment manufactured by Ariens Company of Brillion, Wis., is a heavy-duty, self-propelled, 4½-hp rotary snow thrower, with 24" x 17" capacity. It is called the Sno-Thro and clears a 2-foot wide path, 65 to 125 feet long in one minute—the equivalent of hand-shovelling 300 average-size snow-heaped shovelsful (approximately 1500 pounds of snow).

*(Continued on page 250)*

MORE THAN 2000 PRESTRESSED CONCRETE TANKS IN SERVICE



*New 660,000 Gallon Stand Pipe.*
*City of Wadsworth, Ohio.*

*Consider these features*
- Minimum maintenance
- 75% construction cost spent locally
- Owners seldom return to other types
- Longest service life of any tank
- Lowest overall cost to community

*Send for Bulletin T-22*

PRELOAD

THE PRELOAD COMPANY, INC.
355 Lexington Ave., New York 17, N. Y.
Tel.: MUrray Hill 7-0488
351 Jefferson, Dallas, Texas.
Tel.: WHitehall 1-5707

PRELOAD CONCRETE STRUCTURES INC.
837 Old Country Road
Westbury, L. I., N. Y.
Tel.: EDgewood 3-4040

THE CANADA GUNITE COMPANY, LTD.
125 Hymus Boulevard
Pte Claire, P. Q., Can.
Tel.: OXford 5-6772

HERRICK IRON WORKS
28400 Clawiter Road, Hayward, Calif.
Tel.: LUcerne 1-4451

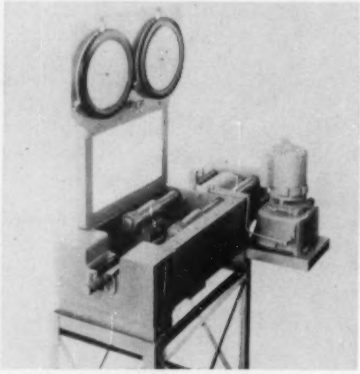
*(Continued from page 249)*

The machine has two forward speeds and reverse. The 2-speed self-propelled feature eliminates pulling, pushing, tugging. Slow-turning, self-cleaning blades "auger in" the snow and uniformly feed it into the Sno-Thro. High-speed blades working like miniature shovels, throw the snow up to 25 feet away in any direction as well as up or down. A hand crank within easy reach of the operator controls the 180° directional discharge.

For additional information, write Ariens Company, Brillion, Wis.

## Tension Testing Machine

Forney's Inc. has designed its new Model TM-100 tension machine especially for pulling reinforcing bars from No. 2 to 11. Two ranges are avaliable as standard equipment: 0 to 30,000 pounds and 0 to 250,000 pounds. Two sets of gripper blocks handle all sizes, including No. 2 and No. 11.



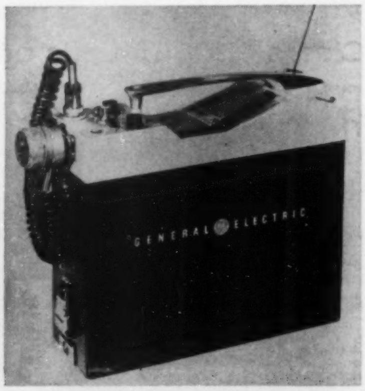
*Model TM-100*

The TM-100 also can be arranged to test stranded cable in tension and 6″ x 12″ cylinders in compression. For complete information, write Forney's Inc., Tester Division, Box 310, New Castle, Pa.

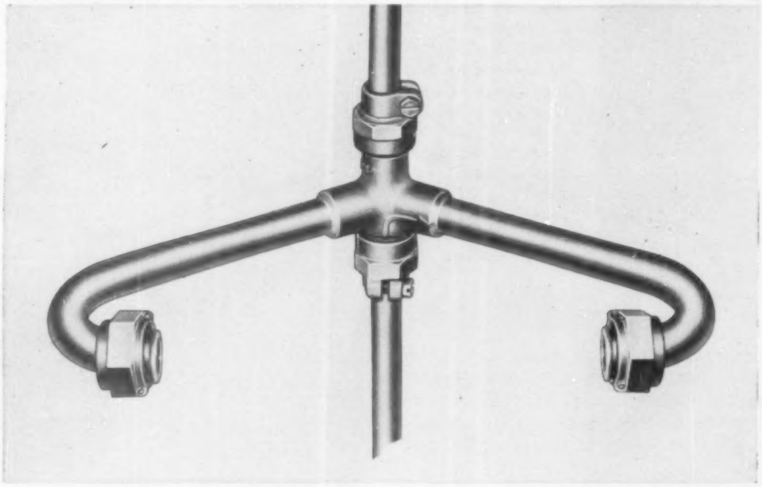
## Portable Two-Way Radio

A new portable two-way radio with built-in battery charger—used with a 12-volt d. c. vehicular system or 117 volt a. c.—saves battery replacement costs and enables the portable to be placed on constant charge on a shelf while awaiting use. The equipment may be charged thousands of times, the manufacturer states, without battery damage.

The new unit contains an all-transistorized receiver, and operates in the 25-54 mc. and 144-174 mc.



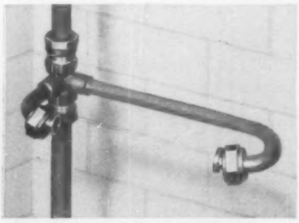
**NO basement meter mounting can be installed as quickly and easily as Ford's "HANDYHORN"!**



The new Ford HANDYHORN (above) eliminates pipe threading, flaring and soldering, puts meter right side up, and provides a permanent physical and electrical connection of the service even when the meter is removed.

Quickest and simplest means of setting meters in basements, the HANDYHORN can be installed with saw and wrench. It can be used in nearly all vertical piping. Tubes are set at an angle of 120° to permit installation in corners where pipe is at least 2″ from wall surfaces.

Convenient, durable and attractive, the HANDYHORN is the modern way to mount water meters . . . reduce installation costs.



Where piping is too close to corner . . . the Ford KORNERHORN can be employed. Like the HANDYHORN, this mount does not require flaring or soldering . . . and is quick and easy to install.

For more information, write . . .

FORD

FOR BETTER WATER SERVICES

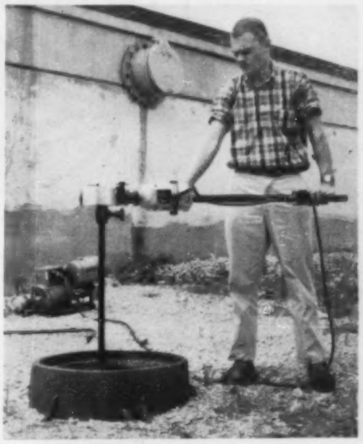
THE FORD METER BOX COMPANY, INC. Wabash, Indiana

frequencies. Thus, it may be used to transmit to existing vehicular two-way radios, to pocket units, or portable-to-portable. For further information, write SECTION P, GENERAL ELECTRIC COMMUNICATION PRODUCTS DEPT., P. O. Box 4197, LYNCHBURG, VA.

## New Portable Mechanical Valve Operator

A portable, powered gate-valve operator was introduced at the recent American Water Works Association meeting in Miami Beach, Fla., by THE E. H. WACHS CO., 1525 N. DAYTON ST., CHICAGO 22, ILL. The new operator, which is easily picked up and handled by one man, can use any convenient source of electric power to operate the valve. It also can be operated by compressed air.

The unit operates through a Wachs Power Drive, which also can be used on tapping machines, pipe cutters and other units. It turns either forward or reverse at about 15 revolutions per minute.



***A Wachs Power Drive operating a 16-inch valve in a pit uses a Homelite electric generator as its power source.***

## Subsurface Drainage

This perforated asbestos-cement pipe is solving many problems formerly encountered in subsurface drainage of streets, highways, air-

*(Continued on page 253)*

**TWO PIECE**

sliding or screw type cast iron valve boxes for covering 4" thru 10" valves for water or gas. Rugged construction for lifetime service. 5¼" shaft. Extensions as required.

*Adjustable*
**VALVE BOXES**

**THREE PIECE**

valve boxes supplied with separate bases are available in sliding or screw type. Made with 5¼" and 7" shafts with extensions as required. Complete line of service and roadway boxes.

**ALABAMA PIPE CO.**

We invite Inquiries to Our Nearest Sales Office

120 S. Michigan Ave. / 350 Fifth Avenue
Chicago, Illinois / New York 1, New York

*General Sales Offices*
ANNISTON, ALABAMA

APCO

Sam Patton, County Engineer, Guernsey County, Ohio, recommends

**FENCE FIRE**

**The heavy-duty brush and vegetation killer**

"Fence Fire delivers a more perfect and quicker kill," says Mr. Patton, "with less applications and at a much lower net cost." It's also non-volatile . . . won't harm crops with drifting or vapors. Try Gledhill's new FENCE FIRE and see. NOW! . . . New Fence Fire contains large and wild animal repellent.

If you do your own spraying, use a *Gledhill Roadside Sprayer.* Now offers complete control of spraying width . . . economizes on chemicals and allows constant speed spraying regardless of width of spray being used.

THE
**GLEDHILL**
ROAD
MACHINERY CO.
*Galion, Ohio*

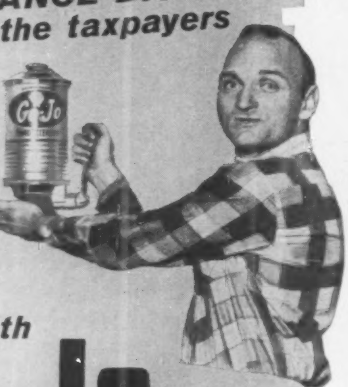
**Good Roads** MACHINERY **"Jet" Spreaders**

**A SIZE AND STYLE FOR EVERY NEED!** Ideal for salt, cinders, sand or gravel, cab operated "Jet" Spreaders provide the speed and capacity essential for fast efficient ice control on streets and highways.

Available in engine-driven, hydraulic and direct power take-off models. Width and depth of spread, and spread pattern are easily varied to meet any requirement. Standard models feature 5½ and 6 cubic yard hopper capacities . . . larger sizes are also available.

***For complete information, see your Good Roads distributor or write:***

**GOOD ROADS MACHINERY Corp.**
MINERVA, OHIO



"AT CLEVELAND MOTOR VEHICLE MAINTENANCE DIVISION we save the taxpayers money by protecting against INDUSTRIAL DERMATITIS with

**Go-Jo**

**Creme Hand Cleaner"**

*...says Raymond Washington, Garageman, Motor Vehicle Maintenance Division, City of Cleveland, Ohio.*

A department that operates on municipal funds has a responsibility to use the taxpayer's dollar wisely. When Dermatitis strikes, on-the-job efficiency suffers and money is wasted. That's why it's important to encourage good skin hygiene and provide Go-Jo Dispensers throughout the shop. The handy dispensers save time and cut clean-up costs 75%.

Go-Jo
HAND CLEANER

*PURGES DEEPLY IMBEDDED GREASE AND GRIME!*

(Excellent for "on-the-spot" cleaning; works best with water.)

*PROTECTS AGAINST INDUSTRIAL DERMATITIS WITH MEDICALLY APPROVED GT-7!*

(a powerful antiseptic.)

*CONTAINS SOOTHING EMOLLIENTS TO PREVENT SKIN DRYING!*

(This guards against "dangerous starting conditions" of Dermatitis.)

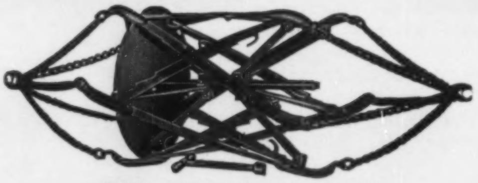
For further information, write:

2102

**GOJER, INC.** Dept. AC 96(

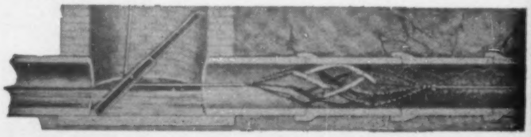
Box 991 — AKRON 9, OHIO

**EXPANDING ROOT CUTTER SEWER CLEANER**

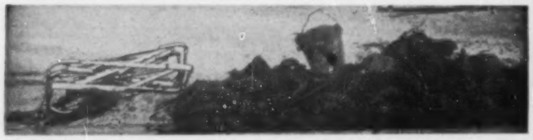


**Fits in on Every Sewer Cleaning Job**
**Adjusted in 30 seconds to fit sewer from 8 to 30 inches.**

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.



**Open and in action removing roots and cake sediment like this.**



***Write for our new catalog on complete sewer cleaning equipment.***

**EXPANDING SEWER MACHINE COMPANY**

**108 East Walnut St. Nappanee, Ind.**

**For Glorious FLORIDA Resort Living**

the *completely air conditioned*

San Marino

POOL · CABANA CLUB · PRIVATE BEACH

**MIAMI BEACH**

You'll enjoy every deluxe resort facility right here — private ocean beach, olympic size swimming pool, planned entertainment program, dining room, coffee shop, cocktail lounge.

Sept. 1 to Nov. 1
$3.50 daily, per person
European Plan
Nov. 1 to Dec. 19
$4.50 daily

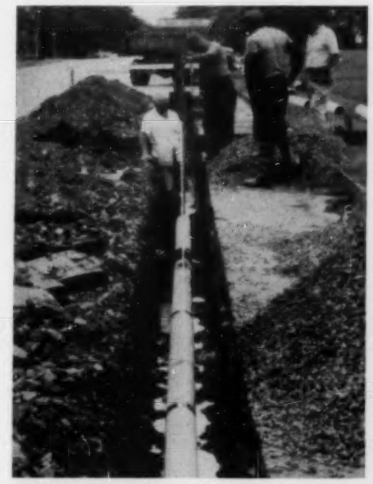
Write for beautiful 4-color brochure. You'll be pleasantly surprised! Write today to:
Charles J. O'Brien
Resident Manager

Hotel San Marino, Oceanfront,
43rd & Collins,
Miami Beach,
Florida

*(Continued from page 251)*

ports, flood control projects and plant sites.

Formed basically of asbestos fibers and cement, the dense uniform structure of this pipe gives it great crushing strength, making possible an economical wall thickness that assures an extremely good weight-strength ratio. Its smooth, uniform interior and resistance to corrosion is said to assure an extremely low frictional resistance to flow of water that continues low throughout the life of the line.



The developer of this new asbestos-cement product states that it provides a permanently tight yet flexible joint through use of mechanically exact plastic couplings. This type of coupling, combined with the pipe's long lengths, assures maintenance of proper alignment, and reduces the infiltration of silt and foreign matter.

Transite underdrain pipe, as it is called, is available in 6″ and 8″ diameters in 10-foot lengths, and in 10″ and 12″ diameters in 13-foot lengths. A full line of elbows, tees, wyes, crosses, end caps, increasers and similar fittings are available in each size.

For additional information and specifications on Transite underdrain pipe, write JOHNS-MANVILLE, 22 E. 40TH ST., NEW YORK 16, N. Y.

## Powerful Chain Saws

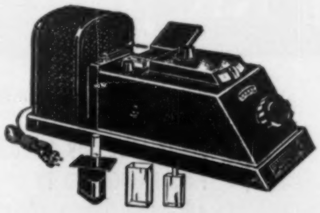
Homelite announces a new line of chain saws (eight in all) for every woodcutting job—from economy model 500 to Model 900-G for felling trees up to 10 feet in diameter. The saws are said to be the

*(Continued on page 254)*

***The direct drive 500, one of eight models in Homelite's new line of chain saws weighs 19 pounds (less bar and chain) and fells trees up to 3 feet in diameter.***

**KLETT SUMMERSON**
**ELECTRIC PHOTOMETER**

***Adaptable for Use in Water Analysis***



Can be used for any determination in which color or turbidity can be developed in proportion to substance to be determined.

**KLETT MANUFACTURING CO.**
**179 East 87th Street, New York, N. Y.**

**BUILT TO "take it"**

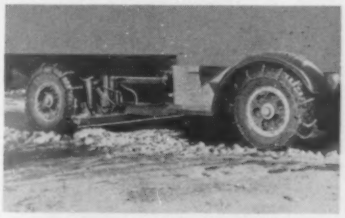
**WAUSAU PRODUCTS**

***The WORLD'S MOST COMPLETE LINE of SNOW REMOVAL EQUIPMENT!***

**A Versatile year-round Maintenance Unit**

**TRUCK GRADER — ICE BLADE**

- Wausau Snow Plows - Vee and Blade
- Wausau Snow Wings
- Wausau **EXPRESSWAY**
- Wausau Sno-Thro Loader and Thrower
- Wausau Material Spreaders
- Write for full details on all Wausau Products . . . Literature available on every item.



Maintains, cuts and grades all types of gravel and dirt roads, eliminates ruts, holes, and washboards. For winter operation it planes, breaks, and removes ice and hard-packed snow hazards . . . truly a versatile year 'round maintenance unit . . . full power hydraulic cab control.

**WAUSAU IRON WORKS** WAUSAU, WISCONSIN
*Pioneer Snow Plow Builders*

*(Continued from page 253)*

world's most powerful chain saws.

According to R. P. Straetz, sales manager of Homelite, each saw incorporates a larger piston and cylinder in its short stroke engine design. The increased displacement results in an extremely powerful engine.

More of this power is transferred to the chain by a new clutch spider made of powdered-steel. It is said to be stronger than the aluminum type and to have a longer working life. Other new features include "Plastisol" ends on the air filters to extend filter life by sealing it against debris and long-range guide plates to feed chain smoothly into the bar groove.

A full line of attachments is available, including a 16-inch plunge-cut bow, clearing bar and brushcutter. For additional information, write HOMELITE, A DIVISION OF TEXTRON, PORT CHESTER, N. Y.

## Takes Big Bites Out of Earth Piles

The Tractor and Implement Division of the Ford Motor Co. has introduced a new earth-moving implement with weight and capacity to match the performance potential of newer models of tractors. It is a heavy-duty rear-attached adjustable blade, available in blade sizes of six and eight feet. It is designed to handle with ease heavy

## Goes After Mosquitoes

***This "Tifa" fogging machine is taking part in one of New York City's several attacks on mosquito breeding areas in the Boroughs of Brooklyn and Queens, a program conducted with the city's health department. "Tifa" applies insecticides in a fog which blankets any particular area. For complete information on this insecticidal applicator, write TODD SHIPYARDS CORP., PRODUCTS DIVISION, COLUMBIA AND HALLECK STREETS, BROOKLYN 31, N. Y.***

**For all-'round deodorizing . . .**

**ROUNDS**

Fragrant, laborless deodorant discs for urinals, bowls, garbage pails, lockers, closets

**Deodoroma ROUNDS** cost in use averages only a *fraction* of one cent a day. Rounds are formed under 70,000 pounds pressure: are dense and durable. Fragrance is locked in: lasts until the last particle has vaporized—there's no harsh "moth cake odor." Packed eight to the telescoping box—each Round sealed airtight—easy-to-shape Holzit wire holder in every box. For literature write to The C. B. Dolge Company, Westport, Conn.

For free sanitary survey of your premises ask your Dolge service man

Dependable DOLGE
WESTPORT, CONNECTICUT

*The "Pick" of*
**MINNEAPOLIS**

**THE Pick-Nicollet**

600 *Rooms with bath from* $6.00

NO CHARGE FOR CHILDREN
FREE RADIO AND TV
AIR-CONDITIONED ROOMS

*Delicious Cuisine and Beverages*

- **WAIKIKI ROOM**
- **JOLLY MILLER**
- **COFFEE SHOP**

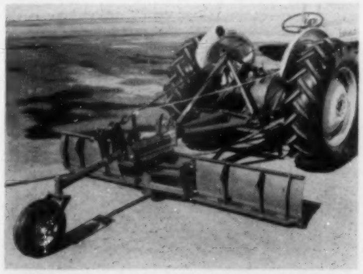
ALWAYS THE BEST FOR EVERY GUEST
ALBERT Pick HOTELS

*FEderal 3-3177*
*Thomas P. Ryan, mgr.*

scraping and backfilling jobs, such as road grading and earth removal.

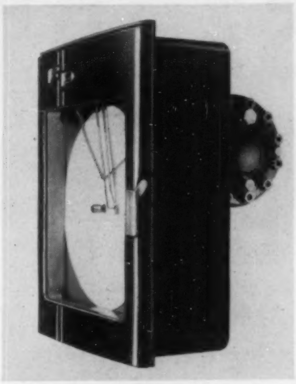
The new unit can be attached to all tractors with Categories I and II three-point implement linkage systems, and features a wide range of adjustments, many of which can be made from the tractor seat. The blade can be angled, tilted or offset for a wide variety of earth-moving operations.

For additional information, write TRACTOR AND IMPLEMENT DIVISION, FORD MOTOR CO., BIRMINGHAM, MICH.



***Park men will find this new Ford adjustable blade a heavy-duty worker. It's available in 6 or 8-foot sizes.***

## Introduces New Bellows Flowmeter



This differential pressure measuring device can be used for both flow and liquid level applications. It's accurate within ½ of 1% using no mercury, seal-pots, purges or stuffing boxes. The meter body is self-draining and self-venting and is rated at 2000 and 5000 psig in steel and stainless steel. The metal-

*(Continued on page 256)*

HOTTEST
STREET PATCHER
IN TOWN
AFTER TOWN

Ellis HOT ROLL

the Original
HEATED
Asphalt Roller

5 TON COMPACTION WATER TIGHT SEAL

Used daily by more than 200 cities, counties, and state highway depts.

PERFECT MACHINE FOR ASPHALT FINISHING

ELLIS "HOT ROLL" Liberty, Mo.

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- Grenadier Dining Room and Lounge
- Coffee Shop
- Convention Facilities
- Ample Parking

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Gen. Mgr.

DETROIT LELAND HOTEL
CASS AVE. AT BAGLEY
DOWNTOWN DETROIT 26, MICHIGAN

EARTHWORM
UNDERGROUND BORING MACHINE

for installation
of pipe and conduit.
20 years of
proven performance!

- BORES—with no surface break
- BORES—up to 250 feet in length
- BORES—up to six inches diameter
- BORES—so drill stem of pipe of conduit stays
- BORES—500 feet on 1 Gal. of gas
- REAMS—up to 12 inches diameter

*Write for Bulletin*

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EARTHWORM BORING MACHINE, INC.
P. O. BOX 1100 • 1415 14TH STREET
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*Red Flint*

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SHIPMENTS MADE BULK or BAGS—ANY QUANTITY

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Eau Claire, Wis.—Phone TE 4-4164

*Distribution of Filter Sands and underdrain Gravels to all States — and Territories of the U. S., Canada and Mexico*

Put A LOAD SWEEPER On Your MICHIGAN Tractor Shovel

For full details consult your Michigan tractor shovel distributor or .....

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CLARK-WILCOX CO.
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to fill vacant administrative and/or engineering positions in your local government?

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Advertisements will be accepted up to the 15th of the month preceding publication at the rate of $15.00 per column inch (minimum 2 inches). Send copy to:

*Production Department*
THE AMERICAN CITY
470 Park Avenue South
New York 16, N. Y.

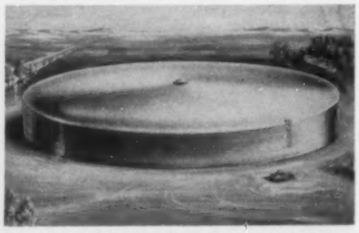
## Purchasing

*(Continued from page 255)*

lic flowmeter has ranges from 0-20 to 0-300 inches of water and may be charged by a simple exchange of the range spring assemblies.

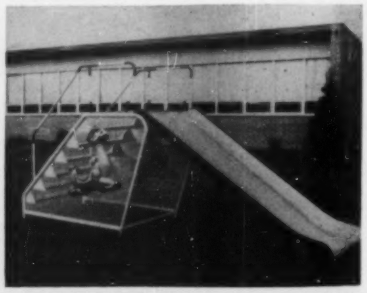
According to the manufacturer, FISCHER & PORTER CO., 471 JACKSONVILLE RD., WARMINSTER, PA., this indicating and/or recording instrument can be equipped with a controller, totalizer, or with a pneumatic or electric transmitter. Additional pressure and temperature indicators or pens are available.

### Second Largest Steel Water Storage Tank in Nation



***This 11 million gallon steel water storage tank is being fabricated by NOOTER CORP., 1400 S. THIRD ST., ST. LOUIS 66, MO., for the St. Louis Water Co. as part of a $5 million expansion program. The tank will be 240 feet in diameter and is being fabricated from steel plates up to 1½ inches thick, pre-formed in Nooter shops and erected by field crews using automatic welding process.***

### Adds to Saddle-Mate Line



***TOT LOT SLIDE. Newcomer to the Saddle-Mate line of colorful, imaginative playground equipment made for smaller children, this tot-size slide is just 4 feet high, 3 feet wide, and weighs 395 pounds. It's of all-metal welded construction, features a one-piece stainless steel shute and steps of 14-gauge steel. For literature and detailed information, write WILLIAM GARRETT, DIRECTOR OF SALES, GAME-TIME, INC., LITCHFIELD, MICH.***

## Policing's a Lark in Milwauke

This is part of a fleet of 56 Studebaker 1960 Lark Marshalls purchased by the City of Milwaukee, Wis., for its police department. They are the first Larks to be purchased by the department and are reported to be unusually well equipped with optional accessories for the police.

Larks are now in service with governmental fleets in over 150 cities and many states. For details, write STUDEBAKER-PACKARD CORP., SOUTH BEND 27, IND.

***Main office and new plant of the SEAMAN-GUNNISON DIVISION of the Seaman Corp. are located in this new building on the northwest side of Milwaukee, Wis. It will be used to manufacture the firm's line of compaction equipment.***

CITY OF UNIVERSITY CITY
1961
5796
KANTOFF
WINDSHIELD LICENSE

***Does a better job... saves money, too!***

Designed for municipalities needing quality license in any quantity. Not an ordinary decal or sticker. Won't tear, wrinkle, bubble! Impossible to remove without completely mutilating. Variety of designs including all state shapes. Brilliant two or three color reproduction.

*Send for our free catalog of Kantoff and metal license, signs, badges.*

6025

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Exciting things happen at the Continental

- Downtown — heart of business, shopping & entertainment
- 350 outside rooms with bath
- LaPetite Lounge
- Fine Convention Facilities
- Garage Next Door

100% AIR-CONDITIONED

**... and you'll enjoy**

le Chateau C DINING ROOM - COCKTAIL LOUNGE

We pride ourselves on serving the finest charcoal steaks in the city.

SWIM in our Modern Indoor Pool

AAA

HOTEL
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NOEL DANIELL, Manager
Phone: HA 1-6040
Baltimore at Eleventh St.,
KANSAS CITY, MO.

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"WHERE'S THE KEY?"

**FREE** TELKEE booklet answers that question for you; shows how TELKEE saves you time and money, gives you new convenience.

**STOPS** time wasted locating lost or borrowed keys

**MINIMIZES** expensive lock replacement and repairs

**ORGANIZES** all your keys in one orderly system

What's more, TELKEE guarantees maximum security and privacy—keeps keys in authorized hands, always.

Offices, factories, stores, schools, housing, hospitals . . . there's a TELKEE System to fit every size and type of application. TELKEE solves every key problem, efficiently, inexpensively.

**FREE—send today!**

TEL KEE

**The MOORE KEY CONTROL® System**

**P. O. Moore, Inc.,** Glen Riddle 50, Pa.
*Send FREE TELKEE booklet*
NAME__________
FIRM__________
ADDRESS__________
CITY_____ZONE____STATE_____

# ABOUT PEOPLE

*J. Kemper*

The recent appointment of Jackson Kemper as executive vice president of the **Mueller Co.,** Decatur, Ill., has been announced by company president A. G. Webber, Jr. Mr. Kemper was formerly vice president and general manager of the Forge and Fittings division of the H. K. Porter Co., Inc. He succeeds W. H. Hipsher at Mueller, who has resigned because of ill health.

Three advancements have been reported for **Duncan Parking Meter,** division of Motor Products Corp., Chicago, Ill. Jerome J. Robinson, who had been chief executive officer of the division, is now president of Duncan; Arthur W. Wunsch, formerly director of production, has been appointed vice president—production, and Richard J. Smott, formerly director of sales, has been named assistant vice president and director of sales.

An expanded, long-range marketing development program for **Studebaker-Packard Corp.,** South Bend, Ind., was announced by President Harold E. Churchill with the appointment of L. E. Minkel to the newly-created post of vice president of marketing. Heads of the present sales, advertising, sales promotion, marketing and parts and service groups will report to the new marketing vice president.

**Stanley Engineering Co.,** Muscatine, Ia., announces that Murray Sedgley has been appointed head of the Construction Group; Lowell Titus, head of the Civil Department of the Design Group, and Paul Sehnert, head of the Chicago Department of the Design Group.

NEW
HEIL
Colectomatic

Joseph F. Heil (right), president of **The Heil Co.,** Milwaukee 1, Wis., presents keys of the new Colectomatic Mark II refuse truck to Joseph L. Rosano, Superintendent of Public Works, Middletown, Conn. The ceremony took place at the New York City Coliseum at the annual convention of the American Public Works Association.

Ralph B. LaBour has been named general service manager of **Tex-Vit Supply Co.,** Manufacturng Division, Mineral Wells, Texas, according to an announcement from S. V. Prator, manager of the sewage lift manufacturing firm.

Word from Phil A. Jenks, vice president, is that Everett L. Decker has been named sales manager of the Fire Apparatus Division of **Ward LaFrance Truck Corp.**

*W. B. Flanigan*

William J. Carroll, president of **The Gamewell Co.,** announces the promotion of W. Ben Flanigan to the position of vice president. With Gamewell since 1946, Mr. Flanigan has served as sales engineer in the firm's Chicago office, as district manager in that area, as eastern regional sales manager, and since 1959 as general sales manager at company headquarters in Newton Upper Falls, Mass.

*W. E. Harrison*

William E. Harrison has been named manager of the Washington, D. C. office of **Armco Drainage & Metal Products, Inc.** He succeeds David E. Henderson, retired. The announcement was made by Warren S. Mann, vice president in charge of sales for the Armco Steel Corporation subsidiary.

Dr. Jack B. Blackburn, formerly an engineer with **Harland Bartholomew and Associates'** Memphis office, has accepted the position of Professor of Civil Engineering and Director, Transportation and Traffic Institute, University of Arizona, Tucson.

From **Ludlow Valve Manufacturing Co., Inc.,** Troy, N. Y., comes word of the appointment of Robert J. Mettler as sales representative for the three-state area of Ohio, Kentucky and Indiana. Headquarters will be in Lima, Ohio.

John C. Croyle, for the last 25 years with International Business Machines Corp., has been named director of customer services of the **Remington Rand Univac Division** of Sperry Rand Corp., according to J. W. Schnackel, vice president and general manager of the division. His area includes customer services for Remington Rand's Univac tabulating as well as electronic data processing service groups.

*R. D. Spencer*

Raymond D. Spencer, for 12 years a vice president of **Koebig & Koebig Inc.** of Los Angeles, one of Southern California's oldest architect-engineer firms has been elected president and chairman of the board. The move is the result of the recent death of President A. H. Koebig, Jr. Other appointments include those of E. H. Graham, Jr., as vice president in charge of operations, and Robert M. Wilkerson, ac vice president for administration.

The election of Gordon Patterson, Detroit industrialist, as president and director of the **Yale & Towne Mfg. Co.,** has been announced by Herbert G. Wellington, chairman of the executive committee. He succeeds Gilbert W. Chapman, retired.

*D. E. Greene*

Appointment of David E. Greene to the position of assistant to the president of **Hamilton Kent Mfg. Co.,** Kent, Ohio, has been made known by T. S. Rowe, president. At Hamilton Kent, Mr. Greene will assist the president in administration of the firm's three manufacturing activities, which are the production of Tylox rubber pipe gaskets, Rexon vbiration mounts, and Rexon pipe coating.

*H. E. Schlenz*

Harry E. Schlenz, president of the **Pacific Flush Tank Co.,** Chicago, Ill., has been appointed to the Steering Committee of President Eisenhower's National Conference on Water Pollution, according to an announcement by Arthur E. Flemming, secretary of Health, Education and Welfare Department. Mr. Schlenz will represent the Water & Sewage Works Manufacturers Association at the conference December 12-14 in Washington, D. C.

George M. Dewire has been named manager of Personal Pocket Radio Communications for **General Electric's Communication Products Department** engineering headquarters at Lynchburg, Va. The new position includes responsibility

*(Continued on page 260)*

# GALION® – *rolling down the highways!*

Through all stages of road construction, adequate COMPACTION of materials is a factor of highest importance. The achieving of specified densities poses no problem when the proper GALION Roll-O-Matic compaction equipment is used. In the compaction of fill, base, subbase, and finish surface on city streets, rural roads, and super highways—the efficient performance of GALION ROLLERS has for many years made them the preferred choice of contractors and public officials. You, too, can benefit by specifying Galion Rollers and Vibratory Compactor units.

***See your Galion Distributor for complete data on the Galion ROLLER RENTAL Plan.***

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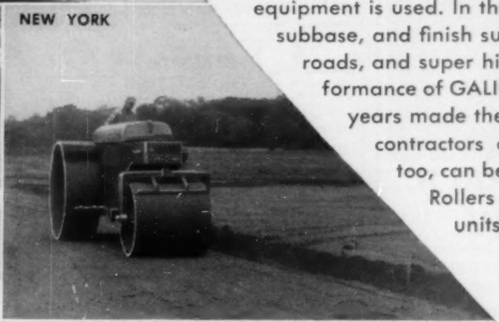
GEORGIA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## *For Every Need in Compaction*

**TWO-AXLE TANDEM ROLLERS**
3-5, 4-6, 5-8, 8-10½, 8-12 and 10-14 Ton Sizes.

•

**THREE-AXLE TANDEM ROLLER**
13-20 Ton Size.

•

**THREE-WHEEL ROLLERS**
4 Sizes with Spoke-Type Rolls.
5 Sizes with Ballastable Rolls.
Weights 8 to 14 Ton.

•

**PNEUMATIC-TIRE ROLLER**
12 Ton, 9 Wheel.

**PORTABLE ROLLER**

•

**TRENCH ROLLER**

•

**VIBRATORY COMPACTORS**
Three-Wheel Roller with Vibratory Compactor.
Model 503 Motor Grader with Vibratory Compactor.

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**MOTOR GRADERS • ROLLERS**
**VIBRATORY COMPACTORS**
**PNEUMATIC-TIRE ROLLERS**

THE GALION IRON WORKS & MFG. CO.
Dept. A-90 Galion, Ohio

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Please send me complete information on the Rollers checked below.

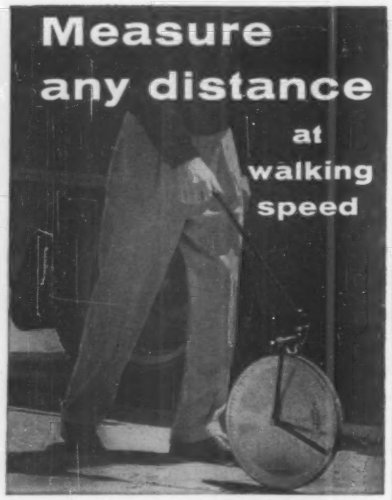
- ☐ Two-Axle Tandem
- ☐ Three-Axle Tandem
- ☐ Three-Wheel
- ☐ Pneumatic-Tire Roller
- ☐ Portable Rollers
- ☐ Trench Roller
- ☐ 3-Wheel Roller with Vibratory Compactor
- ☐ Model 503 Grader with Vibratory Compactor

NAME ____________ TITLE ____________

FIRM or DEPT. ____________

STREET ____________

CITY ____________ STATE ____________



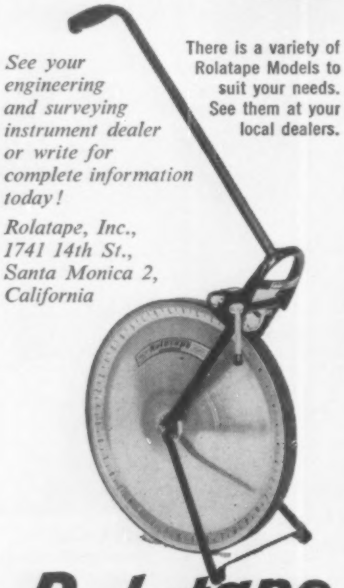
**records 100,000 ft.**
***automatically!***

**It's So Easy** to measure with a Rolatape . . . and you save time on every estimating job . . . no tapes to wind, no helper is required. You get precision-accurate measurements every time.

**Records Feet** automatically and the accumulated total is always in full view.

**Shows Inches, and Fractions** of an inch. Wheel is calibrated in inches and fractions for quick easy reading.

**Shows Tenths** of a foot. Wheel is calibrated in tenths on reverse side for engineers.



There is a variety of Rolatape Models to suit your needs. See them at your local dealers.

*See your engineering and surveying instrument dealer or write for complete information today!*

*Rolatape, Inc.,*
*1741 14th St.,*
*Santa Monica 2,*
*California*

**Rolatape**
**Measuring Wheels**

## About People

*(Continued from page 258)*

for design and development of additional models in G-E's miniaturized line of message communication equipment worn by individuals in government, business and industry.

Enoch Ray Needles, a partner in the New York and Kansas City engineering firm of **Howard, Needles, Tammen & Bergendoff,** was the recipient of the Allan R. Cullimore Award for Distinguished Service at the 44th commencement exercises of Newark College of Engineering.

### CLASSIFIED ADVERTISING

Advertisements in this section will be accepted at the rate of $15 per col. inch (minimum 2 inches). Send copy for ads to the Production Department, THE AMERICAN CITY, 470 Park Ave. South, New York 16, N. Y.

### REPRESENTATIVES WANTED

Transistorized Pipe, Valve and Cable Locator. Sell to cities, gas and water utilities, pipeline contractors, plumbers, engineering companies, etc. For more information write Gardiner Electronics Company, Dept. 37, 2545 E. Indian School Road, Phoenix, Arizona.

### FOR SALE

Pitman GIRAFFE bought new '56, Used one G.E. Building Job, stored since, Painted—Condition Like New. Model L-G-50 mounted on '56 2-Ton Chev. Truck. Price F.O.B. Our Yard $7500.00.

Kenney Company, 2136 Jefferson,
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| One—Elgin, used, but in good condition | $2500.00 |
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### CITY ENGINEER WANTED

Applications invited by 9,300 population city for Florida registered and experienced engineer. Salary $600-$720. Send resume, references and recent photo to City Manager, Deerfield Beach, Florida.

### PLANNING TECHNICIANS

Planning Technicians for fast growing Southern California County. College Degree and/or professional planning experience required. Salary, $440 or $489. Write to San Bernardino County Personnel Dept., Courthouse, San Bernardino, Calif.

### POWER PLANT SUPERINTENDENT

For Municipal Power Plant—14,000 KW steam and 2910 KW diesel generating units. M.E. graduate preferred. Salary $600-$765 per month. Send complete resume to City Manager, Box 190, Woodstock, Illinois.

### WATER MANAGER

City of 12,000 requires a water manager who should be a graduate engineer with at least three years experience including one in utility management. Appropriate experience may be acceptable in lieu of college degree. Water system includes wells, pumping stations, tanks, and distribution mains. Salary commensurate with ability and experience to $7,200 maximum plus benefits.

Director of Public Works
Cambridge, Maryland

### REPRESENTATIVE WANTED

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# The American City

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*Consulting Engineers*
Water, Sewage, Industrial Wastes and Incineration Problems, City Planning, Highways, Bridges and Airports, Dams, Flood Control, Industrial Buildings, Investigations, Reports, Appraisals and Rates.
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**ALLEN & HOSHALL**
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**ALVORD BURDICK & HOWSON**
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Modern Comprehensive
City and Area
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**"Plans Which Can Be Carried Out"**
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**MICHAEL BAKER JR., INC.**
***The Baker Engineers***
Civil Engineers—Planners—Surveyors—Municipal Engineers—Airport Design — Sewage Disposal Systems — Water Works Designs and Operations—Consulting Services—Surveys and Maps
**Branch Office—Jackson, Miss.**
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*Real Estate Appraisers & Consultants*
Urban Renewal Re-Use Appraisals Economic Studies
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*Over one-third century of Experience*
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**Complete facilities for all aerial photography, processing, photogrammetric drafting and reproduction.**
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**AERIAL SURVEYS, INC.**
**Maps and Aerial Photographs**
**For all Planning and Engineering Purposes**
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**EXPERIENCE COUNTS: Dependable Photo Maps, Topographic Maps, Tax Maps**
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***Oldest Flying Corporation in the World • Founded 1919***
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**AQUATIC • TERRESTRIAL • HIGHWAY • STREET**
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**Biological Surveys Made of Weed Infested Water Recreation Areas**

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AERIAL SURVEYS
**TOPOGRAPHIC • PLANIMETRIC • MOSAIC MAPS**
**AERIAL MAPPING CUTS SURVEY COSTS**
*write for free brochure on mapping and aerial photography*
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FIRE ALARM, TRAFFIC AND PROTECTIVE SIGNALING
MAIN OFFICE, NORWOOD, LOUISIANA
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**JOHN J. BEHRENDS AND ASSOCIATES**
*Consulting Engineers*
SPECIALIZING IN
TRAFFIC — PARKING — REPORTS — SURVEYS
801 SOUTH BLVD., OAK PARK, ILL. ST. PETERSBURG, FLA.

**BENHAM ENGINEERING COMPANY**
**and Affiliates**
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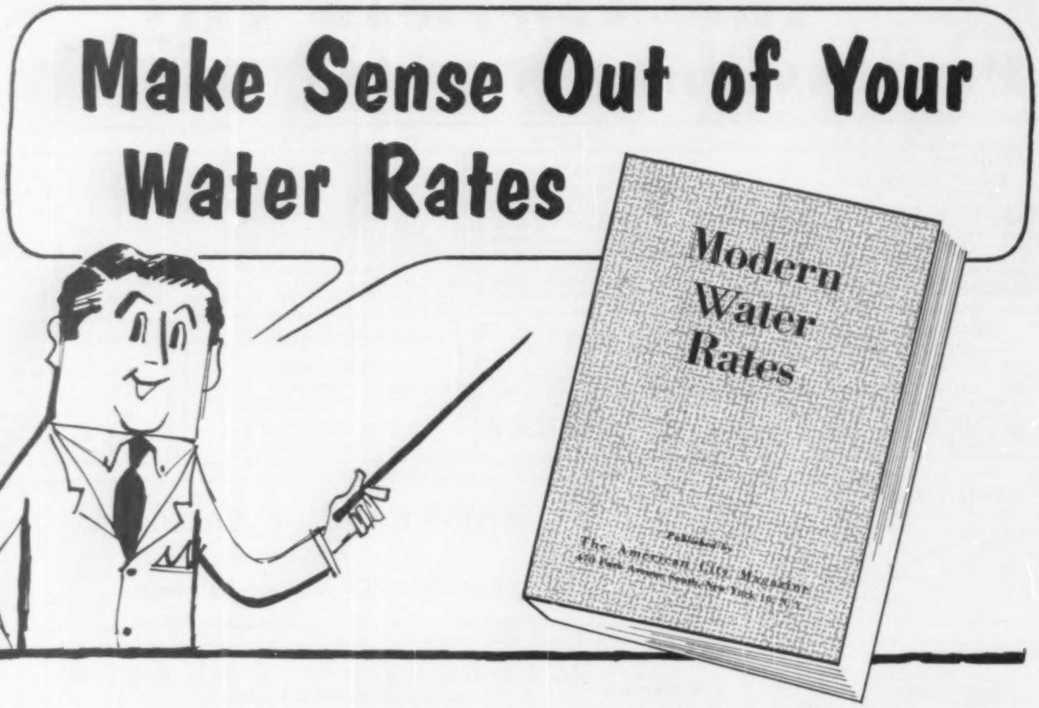
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# MORE NEW TRAXCAVATORS

THE 2¾ yd. 966

THE 1¼ yd. 922

## NOW THREE WHEEL LOADERS...BIG IN EXPERIENCE

Now there's a Caterpillar wheel loader for your job—the new *2¾ yd., 140 HP 966* for high production where you measure time in tons loaded—the *2 yd., 105 HP 944* introduced this spring and already gaining an acceptance unmatched in machine history—the new *1¼ yd., 80 HP 922* with the big machine operating and safety features that give it the speed and versatility to handle all those jump-and-run jobs.

There's a seven-year history of testing, torturing and working these Traxcavators . . . proving every component, every feature. They've been on tough jobs all over the country with field engineers watching every cycle, recording every strain.

Now Caterpillar's full line of wheel loaders is proved and ready for work—ready without compromise. They'll fulfill all your expectations of the most advanced wheel loaders on the market today.

See the one man with all the facts on the new Traxcavators—your Caterpillar Dealer. He can give you the full story on the wheel loaders that are brand new in features.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

### The 966 and 922 have all these features introduced by the 944:

**Cat Diesel Engines**—Turbocharged for efficiency and quick acceleration.
Optional gasoline engines for the 922 and 944.

**Cat Power Shift Transmission**—gives instant shifting, forward and reverse, 1st and 2nd speeds. High and low range selector also provides two-wheel drive for roading, four-wheel drive for power and traction in work cycles.

**Operator Safety**—Lift arms and cylinders are forward of the operator and cockpit. Visibility is excellent and access is easy . . . up three wide steps.

**Long Reach**—With the lift arms up front, the dumping reach of the new Traxcavators is impressive: 57″ on the 966, 51″ on the 944 and 41″ on the 922.

**Operator Conveniences**—Bucket controls have automatic positioners to speed every cycle; machine controls are all power boosted for easy operation. Dual brakes give operator choice of braking with or without transmission engagement.

**Full Line of Attachments**—Special material buckets, side dump buckets, forks, cabs, etc.

**CATERPILLAR**

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TRAXCAVATORS
ARE MAKING OTHER
LOADERS OBSOLETE

*Assessor Donald S. Hattan, left, with Sheriff Joe Shobe. Mrs. Zeda Delph is at the Burroughs keyboard.*

BURROUGHS F-2500 COMPUTERS TRIM TAX-BILLING TIME 60% FOR CLACKAMAS COUNTY, OREGON

**The scene:** Clackamas County courthouse, Oregon City, Oregon. **The jobs:** tax billing, tax collection posting, tax distribution, real and personal property assessment calculation. **The problem:** an increasing work load and fixed time limitations. **The equipment:** three Burroughs F-2500 Computers. **The results,** in the words of County Assessor Donald S. Hattan: "The computers have greatly strengthened our existing system, and were installed without disrupting our established routines. They're saving us 90% on calculating and processing real property reappraisals . . . and they've cut our tax billing time 60%."

Clackamas is one of many counties helped to new accounting efficiency by Burroughs office automation equipment. For details, action—and results—call our nearby branch now. Or write Burroughs Corporation, Detroit 32, Michigan.

Burroughs
Burroughs Corporation

*"NEW DIMENSIONS / in electronics and data processing systems"*

*Cuts costs on rock-loading and other scattered jobs*

# Canadian city operates two Michigans for $3.70 hourly

By loading rock and other tough materials fast, two Model 75A Michigan Tractor Shovels have substantially cut earthmoving costs in Calgary, Alberta.

The City's two 80 hp 1¼ yd Michigans work for about half as much as the fleet of industrial tractors, belt loader, and 90 hp crawler-loaders they replaced. They waste less time between jobs, too.

Take the pictured task as an example.

On one of its typical "tough jobs," Michigan picks up boulders (big picture), loads them into trucks (above) for haul to river dike.

### Michigan speeds to job

Here, a fleet of trucks was waiting to start hauling rock for river dike construction. Obviously, this was a loading job much too tough for industrial tractors. Also, the pit was too far away for a crawler to be trucked in soon. So, the call went out for one of the Michigans.

The closest one drove in rapidly from a gravel pit. Its four-wheel-drive and 8,000 lb lift capacity paid off immediately. Two minutes, four passes, heaped each 5-yard (3 ton) truck. At this rate, the boulder-handling job was soon over . . . and the Michigan in minutes was driven back to its original assignment. Waste time was minimized . . . costs per hour decreased . . . the City's $8,500,000 public works budget (for 215,000 people) stretched.

### 7,375 working hours: 98.9% availability

Two and a half years operation of this type—heavy jobs, light jobs, freezing cold, dust, rain, road-building, snow-plowing, dirt-salt-gravel loading, etc, etc—7,375 Michigan working hours in all—have cost the City of Calgary only $13,619—an average per hour of $1.85 (including fuel, lubrication, tires, repairs, and depreciation).

Remember, this cost averages all sorts of jobs, *including* rock-loading! (Operators wages are not included; the City charges this cost to the department as a whole, not to a specific machine.)

Even if you *do* include wages against the Michigans, we're sure you'll agree they are being operated very reasonably. Could Michigan's speed, mobility, and ruggedness help you? We'll be glad to demonstrate so you can judge for yourself. See your Michigan Distributor to arrange a date. His name, address and phone number are listed in your regional construction magazine.

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**Construction Machinery Division**

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